TX 551
.W7
Copy 1

University of Texas Bulletin
No. 2123: April 20, 1921

WHAT TO FEED THE FAMILY

BY

JET CORINE WINTERS
Adjunct Professor of Home Economics

Department of Home Economics
and
Home Economics Division of the Bureau of Extension

PUBLISHED BY
THE UNIVERSITY OF TEXAS
AUSTIN

Publications of the University of Texas

Publications Committee:

Frederic Duncalf	C. T. Gray
Killis Campbell	E. J. Mathews
D. B. Casteel	C. E. Rowe
F. W. Graff	A. E. Trombly

The University publishes bulletins six times a month, so numbered that the first two digits of the number show the year of issue, the last two the position in the yearly series. (For example, No. 1701 is the first bulletin of the year 1917.) These comprise the official publications of the University, publications on humanistic and scientific subjects, bulletins prepared by the Bureau of Extension, by the Bureau of Government Research, and by the Bureau of Economic Geology and Technology, and other bulletins of general educational interest. With the exception of special numbers, any bulletin will be sent to a citizen of Texas free on request. All communications about University publications should be addressed to University Publications, University of Texas, Austin.

1730-8119-7-18-21-2000

University of Texas Bulletin
No. 2123: April 20, 1921

WHAT TO FEED THE FAMILY

BY

JET CORINE WINTERS
Adjunct Professor of Home Economics

Department of Home Economics
and
Home Economics Division of the Bureau of Extension

PUBLISHED BY THE UNIVERSITY SIX TIMES A MONTH, AND ENTERED AS SECOND-CLASS MATTER AT THE POSTOFFICE AT AUSTIN, TEXAS, UNDER THE ACT OF AUGUST 24, 1912

TX551
W7

The benefits of education and of useful knowledge, generally diffused through a community, are essential to the preservation of a free government.

Sam Houston

Cultivated mind is the guardian genius of democracy. . . . It is the only dictator that freemen acknowledge and the only security that freemen desire.

Mirabeau B. Lamar

LIBRARY OF CONGRESS
RECEIVED
SEP 28 1921
DOCUMENTS DIVISION

WHAT TO FEED THE FAMILY

CONTENTS

	Page
Introduction	3
The Needs of the Body	4
Food for the Different Body Needs	7
Comparison of Food Value of Foods	12
The Digestive System	19
Constipation	22
Bacteria in the Digestive Tract	23
Infant Feeding	24
Diet of Older Children	27
Menu Making	30
The Meal Plan	32
Suggestions for the Menu	37
Suiting the Menu to the Children	42
Food Prejudices	43
Relation of Weight to Height	44
Other Signs of Bad Nutrition	48
Reducing and Fattening Diets	51
Nutrition Classes	56
Comparision of Cost of Energy-Giving Foods	58
Comparision of Cost of Protein-Giving Foods	60
Comparision of Cost of Mineral-Giving Goods	61
The Food Budget	63

WHY THIS BULLETIN?

A great many women, vitally interested in supplying their families with the proper kind of food, complain of the dearth of concise, practical, and accurate information in this particular field. They do not have time for reading entire volumes and puzzling out the meaning of the scientific terms, and, from the woman's pages in the various magazines, they can only gather together a mass of unrelated, unorganized, and perhaps inaccurate material, which they find of little practical use. The literature relating to this subject is growing more and more puzzling with its constant references to those "mysterious somethings" that food must contain in order to promote proper growth and health. How is it possible to know that the rapidly growing bodies of the children are being supplied with everything necessary for their best physical development, and that the food for the grown-ups is compatible with their digestive powers and sufficient for energy and repair demands?

The following material has been compiled with the busy housewife in mind and with the conviction that it is possible to present the practical aspects of the science of nutrition in such a way that they can be understood and applied by even the busiest of these housewives.

THE QUESTIONS OF FOOD

There are certain questions which present themselves for consideration when we begin to inquire into the problem of proper food. These seem to succeed each other in logical manner, somewhat as follows:

1. What are the needs of the body which must be met by food?
2. To what extent do the various food materials meet these needs, and how may we compare food materials as to their actual food value?
3. What part does the digestive system play?
4. Why and how should the food for a child differ from the food for a grown-up?
5. What kind of menus will combine food materials in such a way as to provide the best nutrition for both children and grown-ups?
6. How are we to judge of the nutritive condition of the different members of the family, and what means can be taken to remedy former dietetic errors?
7. What are the most economical food-combinations that will provide proper nutrition?

Let us discuss each of these separately.

WHAT MUST WE GET FROM OUR FOOD?

Building Material. The human body is made from the food that is furnished it, and whether it is properly made or not depends to a great extent on the kind of material provided. There are two, perhaps we may say three, kinds of material needed. One kind is needed to build the bony frame-work of the body and the teeth, hair, and nails; another is needed to build the body tissue itself—muscles, nerves, internal organs and glands; and, of course, somewhere we must get material for the fat that is scattered through the body, helping support the internal organs, rounding out the curves of muscles, or acting as a pad for warmth, or to prevent shocks from blows. Besides these, there must be material for the blood and lymph and the

various digestive juices. When we think of the different kinds of tissue in the body, we need not be surprised at the various kinds of building material needed. Of course there is a great difference in the need for building material in the adult and the child. The body of the adult is, for better or for worse, a finished product. The growth impulse has ceased, and the only changes that can be made are the putting on or taking off of fat or the enlargement of muscles through exercise. Except in the case of this enlargement of muscle, or in the building up process after a wasting disease, or in pregnancy, there is no actual production of tissue. So the adult body needs building material only for repair, while that of the child must have material for construction of tissues. The kind and amount of building material is thus more important in childhood than in adult life.

Energy. Besides depending on our food for building material, we depend on it for energy. The energy for every movement that we make, and for the beating of the heart, the expansion and contraction of the lungs, the pushing of the food through the digestive tract, and the tension of muscles is supplied by the food. Food, taken into the digestive system, is converted by the action of the different digestive juices into simpler and simpler substances, and these are absorbed, in the small intestine, into the tiny blood vessels lining the walls of the intestines, or into the lymph, and carried to the various tissues where they are oxidized or burned, thus producing heat energy which can be changed into muscular energy in much the same way that heat energy from coal is changed into the energy for running an engine. If not enough food is taken into the system to supply all energy needs, the body will burn its own tissue, using the fat first, to meet the emergency. If more than enough food is supplied, the body changes the surplus fuel into fat and stores it in the body as a reserve food supply. We can measure exactly the amount of energy that is used by an individual during any given length of time by means of an instrument called the respiration calorimeter. The result is expressed in terms of calories, the calorie being used as a unit of measurement for heat energy, in the same

way that an inch is used for measuring length, or a pound for measuring weight. The calories used must be replaced by an amount of food that will give the same number of calories when burned in the body. Since we are able also to calculate the number of calories in any given amount of food, by burning it in a bomb calorimeter, it is a fairly easy matter to estimate the average number of calories an individual needs per day and the amount of food that will provide this. But few housewives have time for such calculations, nor are they necessary. As will be explained later on, there is a much simpler method of judging whether an individual has been getting too few or too many calories, which simply means too little or too much food. But we shall come back to calories again, when we discuss the differences in the fuel or energy value of different kinds of food material.

There are three factors which determine, in the main, the energy requirement of an individual; in other words, three factors which determine the amount of food that a person should eat. The most important of these is muscular activity. The day laborer, doing heavy muscular work, will require two or even three times as much food in a day as a man who does most of his work sitting at a desk. Size is also an important factor, and the energy requirement increases with the body weight. The third factor is age. The voracious appetite of the rapidly growing boy or girl has often been remarked. The seemingly huge amount of food consumed is really necessary for the rapidly growing body. The energy requirement of the fourteen-year old boy is usually greater than that of his father.

Body Regulating Substances. The third need of the body, for which we must look to food, is the need of what is often termed "body regulating substances." This is a bit more difficult to explain than the need for building material or energy. If we think of the body as a complicated machine, these body regulators might be compared to the balance wheels. The neutrality of the blood, the acidity or alkalinity of the digestive juices, the regular beating of

the heart, the response of nerve and muscle to every impulse, all depend upon the presence of certain mineral elements in suitable amounts in the fluids and tissues of the body. These elements must be supplied by the food.

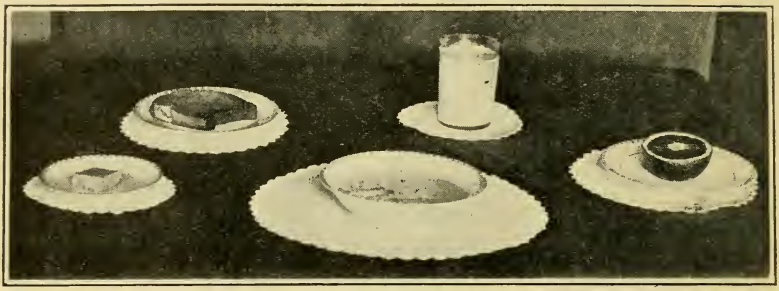
Vitamines. And lastly the vitamines! We are ignorant of the chemical nature and method of action of these substances, but we know they exert a profound influence not only on growth and development but on the nutritive condition as a whole. Three of these substances are, at present, recognized. They have been named Water-Soluble B, Fat-Soluble A, and Water-Soluble C, or vitamines A, B, and C. Certain diseases, called deficiency diseases, are known to be caused by a lack of one or the other of these substances in the diet. Thus a lack of water-soluble B causes beriberi, a lack of fat-soluble A results in an eye disease known as xeropthalmia, and a lack of water-soluble C gives rise to scurvy. All of the vitamines seem to be vitally related to growth, and a diet low in any one of them will result in stunted growth, when fed to a young animal. They are also known to be affected by heat, Water-Soluble C being, in most cases, completely destroyed by exposure to high temperature. Alkali, also, helps to destroy them.

Summing up the answer to our question, we may say that the needs of the body which must be met by food are four; the need for building material; for energy, for regulating substances, and for vitamines. These needs must be kept in mind in attempting to estimate the real food value of the various food materials.

HOW SHALL WE MEASURE THE VALUE OF FOOD MATERIALS?

In considering the value of a food material, we should keep the needs of the body in mind and the extent to which the particular food meets these needs. For the most part, our ordinary food materials can be counted on to meet more than one need of the body, but we can classify them roughly as follows:

To meet energy needs—starchy foods, sweet foods, and



BREAKFAST

Orange

Oatmeal Cream Sugar

Toast Butter

Milk

LUNCH

Macaroni and Cheese

Fruit Salad

Whole Wheat Bread Butter

Cocoa

DINNER

Hamburg Steak

Baked Potatoes Spinach

Bread Butter

Apple Snow

Three simple easily prepared meals which furnish everything necessary to the body. (See page 37.)

fats. Starchy foods include the starchy vegetables (Irish and sweet potatoes), cereals, especially those with the outer husks removed, and food materials made from cereals such as macaroni, bread, cakes, crackers, etc. Sweet foods include sugars, sirups, candies, dried fruit, and sweet desserts. The starchy foods and sweet foods are both classed as carbohydrate foods. Fats include butter, cream, salad oils, cooking oil, meat fat, and food products containing a great deal of fat, such as pastry. We think of carbohydrates and fats chiefly as energy givers.

To Meet the Need for Building and Repairing Body Tissue—meat, eggs, milk, cheese, most nuts and legumes (beans and peas). These contain a large per cent of protein, which is the material necessary for building tissue, and are called protein foods. Protein foods are also energy givers, since all of them, except lean meat, contain certain amounts of carbohydrate or fat or both, and since protein itself can be oxidized in the body to produce energy. Only a very small proportion of the protein molecule is used in body building and the rest is burned. So we might consider protein foods as energy-givers plus body builders. But the body-building function is most important, because only protein contains nitrogen, which is the important element for tissue building.

To Meet the Need for Building and Repairing Bones, Teeth, Nails, etc., and for Regulating Body Processes—milk, egg-yolk, fresh fruits and vegetables, and the outer coats of cereal grains. These two needs are put together because they are met by the same kind of food, i. e., foods that contain minerals. Fresh fruits and vegetables are good sources of minerals, and they are to be valued chiefly for this, since they contain such large amounts of water that they cannot be compared favorably with other foods as sources of energy or of tissue-building material, even though they contain certain amounts of carbohydrate and protein. Minerals are found also in the outer coats of grain, so that cereals from which these coats have not been removed are valuable sources. Other foods, such as egg-yolk and milk are rich in certain of the minerals.

Although as many as eleven different minerals are found in the body and these must all be supplied by food, we have found that a great many of them are necessary in only small amounts and that there are only three that are likely to be found in insufficient amounts in a diet of ordinary variety. These three are calcium, phosphorous, and iron. Our best source of calcium is milk. Two and one-half cups of milk per day would furnish all the calcium needed by the body, even though no other calcium-containing food were taken. Milk also contains large amounts of phosphorus, as do lean meat, fish, eggs, whole wheat, and string beans. Egg yolk and the green vegetables, especially spinach, are to be depended on for iron, the mineral which plays an important part in the production of red blood corpuscles.

To Meet the Need for Vitamines. "Water-soluble B." This is the most widely distributed of the vitamines and is present in almost all foods except white flour, white rice, new process corn-meal, starch, fats, and sugars. Because of its solubility much of it may be lost if the water in which vegetables are cooked is thrown away.

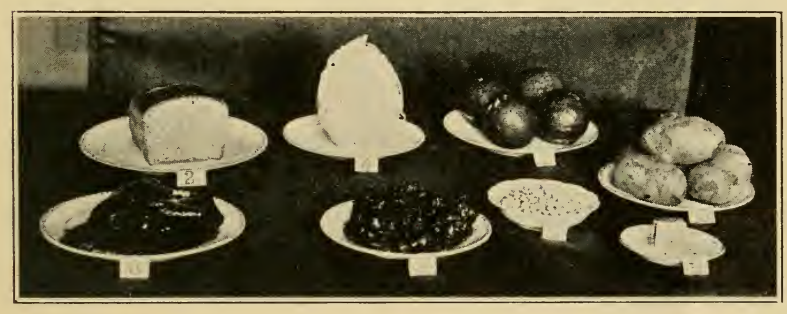
"Fat-soluble A" is found in animal fats, such as milk fat, eggs, beef fat, and codliver oil, but not to any appreciable extent in vegetable oils. It is in glandular organs of animals, such as brain, liver, and sweet-breads, but not in the muscular tissue which we more often eat. The leaves, or young, sprouting parts of plants, such as asparagus, Brussels sprouts, cabbage, celery, kale, lettuce, spinach, etc., are rich in the fat-soluble vitamine, but most seeds are poorly supplied.

"Water-soluble C." Fresh fruits and vegetables are the best sources of vitamine C. It is also soluble in water and even more likely to be lost or destroyed in cooking than vitamine A.

Since the majority of our food materials are a mixture of protein, fat, carbohydrate, water, and minerals, it would be difficult to work out mathematically a food value for each. We can, of course, compare them as to their caloric value, but this is manifestly unfair to those foods whose chief value

FOODS RICH IN FAT—SOLUBLE A.

1. Cod Liver Oil
2. Butter
3. Lettuce
4. Tomato
5. Yellow Corn
6. Egg Yolk
7. Liver
8. Milk



FOODS RICH IN WATER—SOLUBLE B.

1. Orange
2. Whole Wheat Bread
3. Spinach
4. Cabbage
5. Potatoes
6. Yeast
7. Dried Beans
8. Liver

FOODS RICH IN WATER—SOLUBLE C.

1. Oranges
2. Lemons
3. Cabbage
4. Tomatoes, (fresh)
5. Tomatoes, (canned)
6. Potatoes

lies in their mineral content. For instance, in comparing sugar to fresh tomatoes, you would find that in one pound of sugar there are 1814 calories, while in one pound of tomatoes there are only 103 calories, but the sugar has nothing but calories, while the tomatoes have valuable mineral salts and necessary vitamines.

Instead of attempting to compare all foods by means of caloric value, it seems best to follow the rough classification already outlined and to compare only foods that we think of chiefly as energy givers in terms of caloric value, classifying the protein foods according to the amount of protein contained and the foods valuable for minerals, according to the amounts of calcium, phosphorus, or iron. Each type of food must be represented in the day's dietary, so there is a practical value in comparing them on the basis of the body need they best serve.

Comparison of Energy-Giving Foods on Basis of Caloric Value. In dealing with fuel values of food we use the 100-calorie portion as a convenient unit with which to work. This can be stated in terms of either weight or measure. We can then compare foods in two ways, as to the amount of food it takes to make a hundred calories or the number of calories furnished by an equal weight of the different foods, say one pound. Table I on page .. gives both of these methods.

TABLE I

Comparison of Energy-Giving Foods

Food	Calories per pound	Measure of 100-calorie portion	Weight of 100-calorie portion
Starchy Vegetables			
Irish potatoes	304	1 medium	5.27 oz.
Sweet potatoes	447	½ medium	3.58 oz.

Cereals			
Cornflakes	1631	1¼ cups	.99 oz.
Grape-nuts	1683	3 tablespoonfuls	.95 oz.
Macaroons	1624	⅓ cup	.99 oz.
Puffed corn	1600	1¼ cups	1.00 oz.
Puffed rice	1600	1⅓ cups	1.00 oz.
Puffed wheat	1600	1⅔ cups	1.00 oz.
Shredded wheat	1657	1 biscuit	.90 oz.
Cornmeal	1613	2 tablespoonfuls	.99 oz.
Farina	1641	2½ tablespoonfuls	.97 oz.
Hominy grits	1608	2½ tablespoonfuls	1.00 oz.
Oatmeal	1803	4 tablespoonfuls	.89 oz.
Rice	1591	2 tablespoonfuls	1.01 oz.
Breadstuffs			
White bread	1174	1 slice ½ in. thick	1.3 oz.
Graham bread	1140	1 slice ½ in. thick	1.4 oz.
Cornmeal muffins	1332	¾ muffin	1.2 oz.
Bk. pow. biscuit	1232	2 small biscuits	1.3 oz.
Graham crackers	1904	2 crackers large size	.8 oz.
Soda crackers	1875	4 crackers	.9 oz.
Rolls	1232	1 roll	1.3 oz.
Cakes and Cookies			
Doughnuts	1940	½ doughnut	.8 oz.
Molasses cookies	1776	2 cookies, 2¼″ across	.9 oz.
Plain cookies	1776	2 cookies, 2¼″ across	.9 oz.
Loaf cake	1600	1¾ in. cube	1.0 oz.
Angel cake	1232	Piece 1¼″x2″x2½″	1.3 oz.
Sweets			
Chocolate fudge	1776	Piece 1½″x¾″x1″	.9 oz.
Corn sirup	1056	1¾ tablespoonfuls	1.5 oz.
Honey	1480	1 tablespoonfuls	1.1 oz.
Maple sirup	1328	1½ tablespoonfuls	1.1 oz.
Molasses	1328	1½ tablespoonfuls	1.2 oz.
Sugar, granulated	1814	2 tablespoonfuls	.9 oz.
Sugar, loaf	1814	3½ lumps	.9 oz.
Sugar, brown	1720	2 tablespoonfuls	.9 oz.
Fats			
Bacon fat	4000	1 tablespoonful	.4 oz.
Butter	3490	1 tablespoonful	.5 oz.
Cream, thin	880	¼ cup	1.8 oz.
Cream, thick	1730	2 tablespoonfuls	.9 oz.
Cream, whipped	1730	2 tablespoonfuls	.9 oz.
Oleomargarine	3490	1 tablespoonful	.5 oz.
Olive oil	4000	1 tablespoonful	.4 oz.
Wesson oil	4000	1 tablespoonful	.4 oz.

From a study of this table we see that it takes more of the starchy vegetables to make a hundred calories than of fats, sweets, or cereals, and that weight for weight we get more calories from fat than the other energy-giving foods. Fats stand at the top of the list, and starchy vegetables at the bottom from the standpoint of fuel value. Of course the comparative cheapness of the foods in terms of fuel value must be worked out on the basis of the cost per pound. This will be considered when we take up the economic aspect of food.

Comparison of Protein-Containing Foods. It has been found that the daily diet of each person should contain about 75 grams of protein. We can compare protein foods as to the amount it would take to furnish this 75 grams provided no other protein food was consumed. Of course, in our ordinary diet we get protein from many foods, so this method is used simply for comparison. We can also compare protein-giving foods as to the amount of protein in a 100-calorie portion, and Table II, gives the comparison from both of these standpoints.

TABLE II

Comparison of Protein-Containing Foods

Food	Approximate amount containing 75 gms. protein	Grams of protein in 100-calorie portion
Meats	Pounds	
Beef		
Liver	4/5	17.00
Loin	1	10.16
Porterhouse steak	9/10	8.04
Round steak	9/10	9.94
Rump steak	1 1/5	5.82
Tongue	1 1/5	12.08
Pork		
Ham, smoked	4/5	7.15
Loin chops	1 1/5	4.94
Shoulder	1 1/5	4.46
Sausage meat	1	4.82

Lamb		
Leg, hind	1	8.55
Loin	1	5.70
Shoulder	1 1/5	5.33
Chicken	1 1/5	20.06
Fish		
Cod, salt	9/10	23.87
Trout	1 4/5	11.06
Mackerel	1 3/5	12.98
Oysters	2 4/5	12.27
Eggs	1 2/5	9.06
Cheese		
American	1/2	6.50
Cottage	4/5	19.04
Nuts		
Walnuts	3 2/5	2.59
Pecans	3 2/5	1.29
Peanuts	4/5	4.71
Dried beans	7/10	6.53
Dried peas	7/10	6.92
Milk	5	4.76

A study of this table shows us that it takes from 4/5 to 1 1/5 pounds of meat to furnish a day's supply of protein. Fish, dried beans and peas, eggs, cottage cheese, and peanuts compare favorably with meat, viewed from this basis, while walnuts, pecans, and milk are poorer in protein and American cheese much richer. The difference in the amount of protein furnished by the 100-calorie portion lies in a difference of the fat and carbohydrate content of the food, rather than in the protein. Again, the economy of foods as a source of protein supply will depend on the price per pound.

Comparison of Mineral-Containing Foods. Since calcium, phosphorous and iron are the three minerals likely to be lacking in our ordinary American diet, a good way to get an idea of the foods that must be depended on to supply

these is to list foods in the order of their importance as containers of these respective minerals. This is best done on the basis of the amount contained in the 100-calorie portion. Tables III, IV and V give the 25 foods which, with the exception of chard, dandelion greens, kohl rabi, rutabagas, cottonseed meal, cowpeas, lentils, and green peppers (some of the less well-known and less extensively used foods) and of buttermilk and meats, are the best sources of these important minerals.

TABLE III

Comparison of Foods Rich in Calcium

Food	Grams in 100-calorie portion	Measure of 100-calorie portion
Celery	.421	4 cups of 1 in. pieces
Cauliflower	.403	½ medium head
Clams	.285	6 or ⅓ cup
Spinach	.281	2½ cups (cooked)
Lettuce	.224	2 large heads
Cheese	.212	1⅛ in. cube
Rhubarb	.189	4 cups 1 in. pieces
Milk	.174	⅝ cups
Cabbage	.143	5 cups (shredded)
Carrots	.124	3-4 medium
Asparagus	.122	20 stalks
Entire wheat	.118	3½ tablespoonfuls
Turnips	.117	2 cups of ½ in. cubes
String beans	.110	2¼ cups of 1 in. pieces
Oysters	.106	12 small
Strawberries	.104	1⅓ cups
Parsnips	.091	7 pieces 3½″x1½″x⅓″
Cucumbers	.09	2½ 7 in. long
Pumpkin	.089	¼ medium
Oranges	.088	1 large
Brussels sprouts	.086	About 8
Lemons	.08	3 large
Molasses	.074	1½ tablespoonfuls
Raspberries	.074	1⅛ cups
Onions	.069	3-4 medium

TABLE IV

Comparison of Foods Rich in Phosphorous

Food	Grams in 100-calorie portion	Measure of 100-calorie portion
Brussels sprouts	.380	About 8
Spinach	.285	2½ cups cooked
Clams	.282	6 or ⅓ cup
Pumpkin	.229	¼ medium
Lettuce	.224	2 large heads
Celery	.201	4 cups of 1 in. pieces
Cauliflower	.200	½ medium head
Cucumbers	.191	2½ 7 in. long
Asparagus	.177	20 stalks
Cheese	.156	1⅛ in. cube
Cocoa	.143	3½ tablespoonfuls
Dried beans	.137	2½ tablespoonfuls
Milk	.134	⅝ cup
Rhubarb	.134	4 cups of 1 in. pieces
String beans	.126	2¼ cups of 1 in. pieces
Egg plant	.122	½ medium
Eggs	.122	1⅓
Peas, green	.120	1 cup
Entire wheat	.118	3½ tablespoonfuls
Turnips	.117	2 cups of ½ in. cubes
Parsnips	.117	7 pieces 3½″x1½″x⅓″
Tomatoes	.113	2-3 medium
Corn	.102	1 medium ear
Carrots	.101	3-4 medium
Graham flour	.101	3 tablespoonfuls

TABLE V

Comparison of Foods Rich in Iron

Food	Grams in 100-calorie portion	Measure of 100-calorie portion
Spinach	.01506	2½ cups (cooked)
Clams	.00970	6 or ⅓ cup
Lettuce	.00785	2 large heads
Asparagus	.00451	20 stalks
Rhubard	.00433	4 cups in 1 in. pieces
Brussels sprouts	.00349	About 8
Cabbage	.00349	5 cups (shredded)
Celery	.00270	4 cups of 1 in. pieces
String beans	.00265	2½ cups of 1 in. pieces

Molasses	.00255	1½ Tb.
Strawberries	.00205	1⅓ cups
Radishes	.00205	3 dozen, red button
Eggs	.00205	1⅓ eggs
Dried beans	.00203	2½ tablespoonfuls
Cauliower	.00197	½ medium head
Eggplant	.00184	½ medium
Tomatoes	.00175	2-3 medium
Peas, green	.00165	1 cup
Potatoes	.00156	1 medium
Entire wheat	.00140	3½ tablespoonfuls
Raisins	.00139	¼ cup
Lemons	.00135	3 large
Carrots	.00133	3-4 medium
Squash	.00130	1 medium
Pumpkin	.00130	¼ medium

It will be noted that twelve of the foods listed (about 50 per cent) appear on all three lists. These are celery, cauliflower, clams, spinach, lettuce, rhubarb, carrots, asparagus, entire wheat, string beans, pumpkin, and brussels sprouts. All of these are among the best twenty-five foods, as sources of all three minerals. Five foods are classed among the best twenty-five as sources of both calcium and phosphorous—cheese, milk, turnips, parsnips, and cucumbers; four, as sources of both calcium and iron—cabbage, strawberries, lemons, and molasses; five, as sources of iron and phosphorous—dried beans, egg plant, eggs, green peas, and tomatoes. Since so many of the mineral-containing foods appear on all three lists, or at least on two, we can, for practical purposes, consider the foods that supply minerals as a whole, and, from an economic standpoint, take the cheapest of these as the most economical sources of mineral supply. Then, with ordinary variety from day to day, there ought to be little danger of a lack of any of the minerals. Meat is high in iron, but the iron is mostly in the blood, and since the nutritive value of blood has been questioned, it is probably best to depend on other sources of iron supply.

Vitamine-Containing Foods. We know too little about the amounts of vitamines in the various foods to be able to make any comparison on this basis and too little about the amounts

of vitamine needed by the body to make any definite statement as to daily requirement. As a matter of fact, there will be very little danger of vitamine deficiency in the ordinary varied adult diet if milk and one green vegetable are included in each day's diet. It is only in cases of restricted diets that the vitamine supply becomes an important consideration. A restricted diet may result from economic necessity or perversity of appetite. A person with definite food dislikes, especially for milk and green vegetables, may almost eliminate the vitamines from his diet. Since the diet of infants is much more restricted than that of adults, we shall have to give special consideration to the vitamines when we come to discuss that topic.

WHAT ABOUT THE DIGESTIVE SYSTEM?

In addition to providing the body with food that is adequate in respect to energy and to building and regulating material, we must select food that can be easily taken care of by the digestive system, for, as we well know, this mechanism has its limitations and can cope with some food combinations much more easily than others. We do not wish to overwork any part of the system, or to clog it with too much or indigestible food. The purposes of the digestive system are to bring all food into a fluid or finely divided form; to reduce the carbohydrates, proteins, and fats to the simple chemical substances that can be absorbed in the small intestine; to carry the food along the digestive tract at such a rate as will permit of complete digestion and absorption; and to expel the undigested residue and waste products. These processes are partly chemical and partly mechanical. It is perhaps best to consider each part of the system separately.

The Mouth. The chief duty of the mouth is to grind up coarse foods and to soften or dissolve them. When this is not done properly, digestion farther on is delayed. When the teeth are missing or when, for any reason, chewing can not be well done, fluid or finely minced foods should be used.

Beef should be scraped free of all tough fibres, and vegetables and hard-cooked eggs put through a fine sieve, if great ease in digestion is desired. Children are apt to form the habit of bolting food. This can be counteracted by giving fluid food; by giving food that must be chewed in order to be swallowed, like Zwieback, or crisp toast; by not permitting them to wash down the food with water, i. e., permitting a drink only after the food has been swallowed; and by giving plenty of time for meals and requiring them to remain at the table until the meal is finished, so that there is no incentive to eat rapidly in order to run off to play. Thorough mastication is a good habit and should be formed early in life.

The chemical breaking down or changing of starch is begun in the mouth by the saliva. Starch must be changed to a form of sugar called glucose before it can be absorbed. There is great value in taking most of our carbohydrate food in the form of starch, because it is very gradually changed into glucose and the system can easily take care of it, while if vast quantities of sugar, which are almost immediately ready for absorption, are taken into the stomach, much irritation is likely to result because there is too much glucose to take care of at once. It is thought by some that continually overloading the system with sugar is the cause of diabetes, a disease in which the power of the body to oxidize glucose is greatly decreased.

Besides helping to grind and soften all hard, coarse food and to start the digestion of carbohydrate, chewing may be said to be a signal to the stomach to prepare for its duty. The flow of the gastric juice of the stomach begins with the chewing of the food, and the stomach is much better able to take care of the food that is sent on to it, if time has been taken to chew the food properly.

The Stomach. The receiving end of the stomach acts as a reservoir where the food, mixed with the saliva, is held for some time and the starch digestion, started by the saliva, continues. Gradually this food is passed on into the other end of the stomach, where it is thoroughly mixed with the

gastric juice by means of a "churning movement," the muscular contractions of the stomach. The gastric juice begins the digestion of protein foods, and a good, healthy flow depends on many factors. Regularity of meal time is the most important of these, since habit is a powerful force in digestion, as elsewhere, and the habit of responding to food at regular times, and at those only, will do much to keep the stomach healthy. Water taken at the beginning of a meal will stimulate the flow of gastric juice, and the substances which give flavor to meat act in the same way, so that there is an advantage in serving meat early in the meal or beginning the meal with a soup made with meat extract. This is especially helpful in the case of invalids where the stomach responses are feeble and the appetite poor. The general nervous state of a person affects the flow of the gastric juice, and affects also the "muscular tone" of the stomach. There is a real reason for avoiding unpleasant topics of conversation at the table, and for striving to maintain a pleasant meal-time atmosphere. Excitement, worry, anger, chill, and fatigue all tend to retard digestive processes and only the most easily digested foods should be taken under such conditions.

Concentrated foods, such as cheese, candy, nuts, and strongly acid fruits are apt to prove irritating to the stomach and should be taken only in small quantities or thoroughly mixed with other foods. Candy and nuts should not be eaten on an empty stomach, but should be made a part of a meal, preferably taken at the end of it.

A large proportion of fat in a meal tends to retard its digestion, i. e., to hold it in the stomach longer. Hence this should be avoided by people of sedentary habits or people with poor digestion. The out-door worker may find it an actual advantage in that it tends to make the meal "stay by him" and prevents hunger between meals.

Good digestion in the stomach, then, depends upon keeping the whole body in good condition; observing regular meal times; eating only the most digestible foods, when overwrought or exhausted; thorough mastication; avoiding large

amounts of concentrated or irritating foods; and paying attention to the retarding effect of fat.

The Intestines. In the small intestines the breaking down of carbohydrates, proteins, and fats into substances capable of absorption is completed by the powerful digestive juices in this part of the digestive tract. The pancreatic juice is poured in through its special duct; the liver sends the bile, which, though it takes no part in the actual breaking down process, makes conditions for these changes more favorable, and helps especially in the digestion of fat; and the walls of the intestine supply the intestinal juice. There are two sytems of movement in the intestines, one to mix the food with the digestive juices and to bring it into contact with the blood vessels lining the intestinal walls, and the other to move it through the intestines. All along the surface of the intestines the simple substances that have resulted from the chemical action of the digestive juices on the food are being absorbed. It is very important that the rate of passage of food be kept normal, for, if too rapid, as in diarrhœa, absorption is incomplete and we lose much of the value of our food, and if too slow, opportunity is given for the action of bacteria and for the absorption of any poisons they may produce.

Constipation. The normal movement of food through the large intestine is greatly hindered by many of the habits of civilization. The abdominal muscles get little exercise and hence are less vigorous and less able to push the food along at the normal rate. This is because of general physical inactivity and, in women, because of confining dress. Then, our food is apt not to contain enough bulk. The diet must contain a certain amount of indigestible material, or cellulose, to furnish bulk for the intestinal muscles to exercise against. Certain foods, as fruits and acid vegetables, have a chemically stimulating influence upon the movements of the intestines, and these we may unconsciously eliminate from our diet. And lastly, habit plays a large part in normal intestinal movement, as in other digestive processes. When the normal warning is disregarded, it soon becomes

ineffective, and, since the greatest stimulus to intestinal movement comes after eating, and particularly after breakfast, the omission of breakfast may mean the loss of a much needed impulse. From these various causes constipation is one of the most common ills of modern life.

In endeavoring to remedy constipation, then, we should adopt the following suggestions:

1. Attempt to form regular habits of defecation.

2. Eat foods rich in cellulose, such as celery, cabbage, string beans, dried beans, asparagus, lettuce, spinach, onions, raisins, figs, prunes, and other fruits eaten with their skins, and cereals from which the bran has not been removed. Bran itself may prove beneficial and can be taken on breakfast cereals or as bran bread, muffins, or crackers.

3. Include acid fruits and vegetables in the diet. These are lemons, oranges, tomatoes, rhubarb, apples, cider, and other fruits and fruit juices. Desired results are often obtained by taking fruit or fruit juice the first thing in the morning, and liberal serving of fruit at meals is a good method of counteracting constipation.

4. Lubricants are often helpful, and fat, in liberal quantities, is laxative for people whose digestion of fat is imperfect. For most people, however, it is better to depend on the indigestible mineral oil. This does not actually stimulate intestinal movement, but aids in the elimination of waste by making it softer and allowing it to pass through the digestive tract more readily.

5. Water, if taken in large quantities (two glasses or more on an empty stomach) may aid in intestinal movement and drinking water freely is very desirable.

6. Take plenty of exercise and, if possible, discard corsets.

Bacteria. Perhaps a few words about the bacteria of the intestinal tract will not be amiss. In the stomach we find a type of bacteria that produce fermentation. These act only on carbohydrate food, and in case a person is greatly troubled by fermentation it is necessary to decrease the amount of carbohydrate in the food. If, for any reason,

food does not pass through the stomach at a normal rate, or if the stomach is loaded with sweet food which the system can not immediately dispose of, there is likely to be discomfort from the gases of fermentation. The products of fermentation are not, however, harmful to the body, when absorbed into the system. Along the small intestine and in great numbers in the large intestines are found the putrefactive type of bacteria. These act on protein food and produce poisons which, when absorbed into the system cause headaches, dizziness and perhaps auto-intoxication. The putrefactive bacteria act especially upon meat protein, and if great quantities of meat are eaten by a sedentary person who is troubled with constipation, so that the food is held over-long in the large intestine and plenty of time given the bacteria for the production of poison, trouble of the kind described above is apt to result.

Summing up, we might say that the practical warnings we get from a study of the digestive system are as follows:

1. Keep the body, as a whole, in good condition. Any impairment of the nervous system is sure to show itself in a lowered vitality of the digestive system.
2. Take food at regular intervals; avoid eating between meals.
3. Masticate thoroughly.
4. Avoid too large proportion of fat or sugar in the diet. The habit of loading cooked vegetables with vast quantities of butter is bad. Butter is best used separately on bread.
5. Avoid constipation.
6. Use small amounts of meat in the diet, especially if the occupation is sedentary.
7. Avoid use of condiments. They overstimulate and irritate the digestive tract.
8. Remember that the more complicated the food, the more difficult it is of digestion. Simple foods are best.

WHY AND HOW SHOULD THE FOOD OF CHILDREN AND AND ADULTS DIFFER?

A difference in the capacity of the digestive system makes necessary a difference in the diet of children and grown-ups.

Since we use the same material for repair as for growth, there is little difference in the kind of food needed, i. e., if the new-born infant could digest bread and cheese, that would be just as good a food for him as for a grown-up, but we know that the digestive system of an infant is a very delicate mechanism, and that the first food must be fluid and must contain protein, fat, and carbohydrate in the most easily digested forms. We also know that the growing body must be furnished with mineral salts and that the vitamine supply must not be stinted. For the most part, nature takes care of the problem during the first nine months of the child's life, by providing breast milk for the child. This milk contains protein, fat, and carbohydrate in forms that are specially adapted to the needs of the child. It contains all the necessary mineral salts, but is very low in iron. Since the baby comes into the world with an extra supply of iron, three times as much being found in his body in proportion to weight as in that of the adult, this lack is not important until weaning time, when iron-giving foods must be introduced into the diet. The vitamine supply of the child on breast milk seems to depend on the vitamine supply of the food of the mother, so she should see to it that her food contains all three of these necessary substances.

Artificial Feeding. When, for any reason, it is impossible for the child to obtain its natural food, we must resort to artificial feeding. Since we have never been able to even approximate, in artificial feeding, the results obtained in breast-feeding, this should be considered as a last resort, never as a "just-as-good" substitute. Here we must find a food which the baby can digest and which contains the food elements in proper proportions. The milk of another species of animal at once suggests itself, and cow's milk is the most practicable. Cow's milk contains the same building materials as human milk, but in different proportions and in somewhat different form. So the milk must usually be changed or modified to meet the needs of the child. There are several different methods of accomplishing this, but the modification of milk has been discussed so often and so well

that we shall not take it up in detail here. Detailed directions may be found in Rose, "Feeding the Family"; Holt, "The Care and Feeding of Children"; Morse and Talbot, "Diseases of Nutrition and Infant Feeding," or any reliable book on infant feeding. The two methods most used are known as whole milk and top milk methods. In the first, whole milk is diluted with water to decrease the percentage of protein, and milk sugar is added to bring up the energy value. In the second, the top 10-24 oz. of milk are removed, mixed together, and diluted, and milk sugar added. This is used with healthy children who are able to digest a large per cent of fat. Both of these methods need to be considered in the light of our present konwledge of vitamines. Milk is by no means rich in water-soluble B, and it has been suggested that a failure to realize this and to supply this vitamine in proper amounts may be one of the reasons for the failure of artificial feeding. Experiments in which B has been supplied, by using a specially prepared vegetable soup as a dilutant instead of water, by increasing the amount of orange juice, which is usually given as a routine measure to prevent scurvy, and by using an extract of wheat embryo, seem to indicate that this is true, as there was an increase in growth in children when extra water-soluble B was supplied in any of these forms. Orange juice has long been recognized as an antiscorbutic, i. e., as containing large amounts of water-soluble C, but it has also value as a growth-promoter on account of its content of water-soluble B. In every case, when the allowance of orange juice was increased from one to three tablespoonfuls per day, there was an increase in weight with children who were not gaining properly on artificial milk mixtures, and this was proved to be due to its water-soluble B content.

As to top milk mixtures, we should remember that here we are using a mixture that contains practically no water-soluble B. Top-milk contains very little of this vitamine, the greater part remaining in the skim-milk. It would be even more necessary than in using whole milk to supply the missing vitamines.

Whole-milk mixtures are more satisfactory, on the whole, in infant feeding, and it would seem that a whole-milk mixture, adapted to the digesive capacity and energy requirement of the child, fed with 3 Tb. of orange juice, the orange juice being diluted and given between feedings, would meet the requirements of the child as far as we understand them today.

Proprietary Foods. Proprietary infant foods are widely advertised, but their use should be resorted to only in case a child refuses to take the modified milk mixture, and then must be used with an intelligent understanding of their composition and of what additions must be made to furnish a complete food. In composition they differ widely. Some of them consist of dried milk mixed with a certain amount of sugar or dextrin and maltose, to be used with water without cooking; others consist of dried milk mixed with sugar and baked wheat flour, to be used with sugar, but requiring cooking; and a large number are made chiefly from wheat or barley flour, sometimes simply baked and sometimes more or less completely changed to dextrin or maltose. Those not requiring the addition of milk are to be criticised because they deprive the baby of fresh food and because they are often low in fat and ash content. Most proprietary formulas are high in carbohydrate, and the result of using them is an increase in weight of the child, often beyond the normal. The body stores water and fat instead of building bone and muscle. The child looks fat, but is likely to succumb quickly in case of illness and to have trouble from soft or brittle bones, due to a lack of minerals in the diet. Proprietary foods should be used chiefly as milk modifiers, in place of the barley water which is prescribed as a routine measure to make the milk mixture more easy of digestion and to add fuel value. They sometimes are valuable in giving a different taste to the food, so that the child finds it more enjoyable and will thus take more than of the ordinary modified milk. Orange juice should always be added to promote normal growth and to prevent scurvy.

Diet of Older Children. By the time he is nine months

old, the diet of the child needs to be supplemented by some iron-giving food. For this purpose the yolk of an egg should be given daily. About this time, also, he should be given, after one of his feedings, a small piece of stale bread to chew. The chief value of this lies in teaching the child to chew his food. At the age of a year, often at nine months, a child, whether bottle or breast fed, should be taking a quart of whole milk, supplemented by orange juice, dried bread, and egg-yolk. The next addition to the diet is in the form of thoroughly cooked cereal put through a fine strainer, then, gradually, giving small amounts of the new foods and trying only one at a time, other kinds of fruit juice or pulp, as prune juice or pulp, cooked apple juice or pulp, pineapple or fresh peach juice, carefully strained. Vegetable pulp is the next introduction, using first small amounts of the mild-flavored vegetables, always thoroughly cooked and put through a sieve to get rid of the cellulose with which the digestive tract is not yet able to cope. Spinach is rich in iron and is the best vegetable to add first, then green peas, asparagus tips, young beets or carrots. The vegetable pulp may be given with a little salt added, or a small amount of cream, or may be made into a cream soup with milk. Potatoes baked or boiled and well mashed may next be added. The diet of the two-year old should be selected from the following: milk, well-cooked cereals, fruit juice or pulp, yolk of egg, or whole soft-boiled egg, vegetable pulp, and stale bread.

The principle of gradual increase in complexity of diet must still be adhered to after the child has passed his second year. Give the digestive tract plenty of time to adjust itself to new foods. Green vegetables may now be mashed or chopped instead of sifted, and string beans, squash and celery may be added. Mild, thoroughly cooked fruits, such as baked apples, apple sauce, or stewed pear may take the place of the fruit juice or pulp. Whole eggs, cooked at a low temperature (never hard-boiled or fried) should form a regular part of the diet. Milk is still the chief basis of the diet, and a quart a day should be taken. This need not all

be used as beverage, but some of the top milk may be used on cereal, and some of the milk may be served in milk soup or used for simple dessert, as junket or custard, or used in making milk toast. Keep sugars and sweet foods and meats out of the diet. They may not make the child definitely ill, but they are not good for him and not necessary, and will most certainly spoil his taste for the milder kinds of food which should form the main part of his diet.

Since the diet of the child already contains everything essential for his proper growth, the problems from this time on are to provide these simple foods in enough variety to keep the child satisfied and to prevent him from acquiring a taste for more complicated and more highly seasoned foods. Butter may be added to the diet, but should be used on bread, rather than in cooking. Perfectly ripe raw fruits should be added cautiously and, with still more caution, the vegetables that are eaten raw. Cocoa will prove valuable as a beverage, but no tea or coffee should be given children. Home-made frozen dishes, such as milk sherbets and plain ice cream, will give variety to the desserts. Bought ice cream, unless one is absolutely certain of the quality, should be avoided. Occasionally plain cookies, or graham crackers may be served with the dessert. The longer meat can be kept out of the diet, the better it will be for the child. Meat protein, as has been said before, is the protein most liable to putrefaction, and experiments indicate that the younger the child the more speedily the products of putrefaction tend to develop. Since the child is already getting all the building material needed from the milk, eggs, and cereals of his diet, there is no need that the meat would serve that is not already and better met by milk, eggs, and cereals.

Thus, gradually, are the foods of adults introduced into the diet of a child. A quart of milk a day is a good basis for a child's diet, all during the growing period, and the adult diet could contain that amount with advantage and should contain at least a pint.

Every effort should be made to keep the child interested in eating the proper kind and amount of food. The school

nutrition classes are doing much to create this interest in the child of school age, and surely education in proper nutrition should be made a vital part of the general education of every child. Competitive methods used in the schools do much towards inducing children to eat the right kind of food, when all efforts of the mother have failed. Attempts to introduce this work into our school systems should meet with every encouragement. The nutrition of the child of preschool age is however in the hands of the mother, and she will find valuable aids in arousing the interest of the child in the problem of his own nutrition in the material put out by the Child Health Organization and various other agencies interested in Child Welfare. This material consists of health talks told as fairy stories, of the Child Health Alphabet, Mother Goose rhymes to emphasize health principles, plays and games, and charts for recording weight and making weight curves. The organizations getting out material of this kind are:

Child Health Organization, 156 Fifth Avenue, New York City.

Association for Improving the Condition of the Poor, New York City.

Anti-Tuberculosis League, Boston, Mass.

Metropolitan Life Insurance Company, New York City.

Children's Bureau, Washington, D. C.

We shall discuss the methods and results of the Nutrition Classes in more detail later on.

MAKING THE MENU

And now comes the question of planninig menus that will meet the varying needs and the varying tastes of the different members of the family. Planning three meals a day is probably the biggest bugaboo of the housekeeper, and how thankful she would be if someone else would take over the responsibility. But, unfortunately, it is the one part of homemaking that ought not to be trusted to an untrained person. If you would have your family well fed, there is no

escape from the planning of the menus. There remains the possibility of lessening the amount of work involved by following certain routine methods, always with a clear idea in mind of what you are trying to accomplish.

Two Aspects of Menu-Making. First, let us bring together the points that must be kept in mind for meal-planning. We should regard menus from two standpoints, the physiological and the aesthetic. From the physiological standpoint, the following suggestions are made:

1. Serve meat only once a day (exclusive of bacon for breakfast). The disadvantages of eating meat in large quantities have already been pointed out. This rule is especially applicable when most of the members of the family follow sedentary occupations.

2. If possible, use a pint of milk a day for every adult and a quart for every child under sixteen. This need not all be taken as a beverage, but much can be used in cooking. This amount of milk should be kept in mind when planning menus.

3. At least one green vegetable every day. We depend on this and on the milk for an adequate mineral supply.

4. Some uncooked food (fruit or vegetable) each day. Vitamine supply is best assured by uncooked food.

5. Plenty of simple, wholesome food to meet the energy demands of the body. Remember that the food value of a food is the same whether served simply or elaborately, and that the simpler the food, the easier it is to digest. With this in mind, decide how much elaboration is worth while.

6. Spend as much money for milk as for meat, and an equal amount for fresh vegetables and fruits. This helps to insure a well-balanced diet. Most people spend about one-third of all the food-money for meat.

To make our menus attractive, as well as physiologically complete, the following points should be kept in mind.

1. Always plan meals for at least a day. By taking the day as a unit rather than the meal, repetition is avoided and the careless throwing together of whatever foods happen to be on hand or suggest themselves at the last minute. Many homemakers find it valuable to plan menus for a week, and

this is a good way to insure well-planned meals, even though changes are necessary to meet certain emergencies. Have a definite time for planning the week's menus, and you will find it both time-saving and money-saving.

2. Avoid serving any food twice in the same day, in the same form, or better still, avoid serving twice in any form.

3. Avoid serving food which gives a pronounced flavor to a dish twice in the same meal, even in different forms, as tomato soup, tomato catsup, and tomato salad.

4. If the meal is served in courses, contrasts in flavor, texture, and temperature will help make it more appetizing.

5. Keep today's leftovers till day after tomorrow.

6. Make a difference in winter and summer menus.

7. Have a definite meal plan.

The Meal Plan. The two last suggestions need to be discussed in more detail, for by a meal plan we mean just what ought to be served for breakfast, for lunch, and for dinner. The breakfast, lunch, and dinner plan is followed, rather than breakfast, dinner, and supper, because it seems to fit in better with the living plans of the majority of people. There is no reason why the latter plan should not be followed if found more convenient. We can discuss meal plans from the standpoint of what should be included in the type of meal designated as very light, light, medium, and heavy, the type selected depending somewhat on the energy requirements of the members of the family and somewhat on the amount of variety that the family demands in the diet. The diet of laboring people tends, for economic reasons, to lack variety, but the increased appetite that comes from muscular exercise enables them to eat large quantities of the same food, while the more capricious appetite of the sedentary worker demands greater variety, and the result of too little variety is failure to eat enough. Here are the various types of meal plans.

BREAKFAST

Very light

Friut
Toast or rolls—butter
Coffee, cocoa, or milk

Light

Fruit
Cereal
Breadstuff and butter
Beverage
or
Fruit
Eggs or bacon
Breadstuff and butter
Beverage

Medium

Fruit
Cereal
Eggs or bacon
Breadstuff and butter
Beverage

Heavy

Fruit
Cereal
Eggs or bacon
One other hot dish (potatoes)
Breadstuff and butter
Beverage

LUNCH

Very light

Sandwiches (substantial)
Cocoa
or
Cream soup
Sandwiches

Light

Hot dish (Chowder, cheese dish, egg dish, creamed dish on toast)
Bread and butter
Beverage
or
Heavy salad (egg, meat or chees)
Bread and butter
Beverage
or
Sandwiches
Light salad (vegetable or fruit)
Bread and butter

Medium

Hot dish (as above)
Bread and butter
Beverage
Dessert
or
Hot dish
Bread and butter
Salad (vegetable or fruit)
Beverage
or
Heavy salad
Bread and butter
Dessert
or
Heavy salad
Sandwiches
Beverage
or

DINNER

Very light

Meat
Vegetable
Bread and butter
Dessert

Light or Medium

Meat
Starchy vegetable
Green vegetable
Bread and butter
Dessert
or
Meat
Starchy vegetable
Salad
Bread and butter
Dessert
or
Soup
Meat
Vegetable
Bread and butter
Dessert
or
Soup
Meat
Vegetable
Bread and butter
Fruit salad
(Meat may be combined with vegetables, as in stew, and salad or dessert added; or meat combined with starchy vegetable and green vegetable and dessert added)

Heavy

Soup
Meat
2 vegetables
Salad
Bread and butter
Dessert
Beverage

Soup
Hot dish
Light salad
Bread and butter
or
Soup
Hot dish
Bread and butter
Dessert

Heavy

Soup
Hot dish
Salad
Bread and butter
Dessert
(Light salad with heavy dessert
or
heavy salad with light dessert)
or
Soup
Two hot dishes
Bread and butter
Dessert
or
Two hot dishes
Salad
Bread and butter
Beverage
or
Two hot dishes
Bread and butter
Beverage
Dessert

The first thing to decide is the type of meal best suited to your particular family, not that this is to be adhered to absolutely, day after day, without change. It is possible to have a very light breakfast and a medium lunch and heavy dinner occasionally, but it is better, as an ordinary rule, to have the three meals more nearly equal. Let us select the light breakfast as suitable to the family where the father is engaged in a sedentary occupation and the mother does most, but not the heaviest part, of the housework. Fruit, the first thing in the morning, has much to recommend it. It acts as

an appetizer, helps to offset constipation, and furnishes minerals and vitamines. Fresh fruit in season is best, but this may be varied by serving dried fruit sauces either alone or with the cereal, or by serving raisins or dates cooked with the cereal. The ready-to-serve cereals are welcome as a summer-time dish, though never as cheap or as good from a physiological standpoint as the cooked cereals. Shredded wheat has been found to be the best and cheapest of the ready-to-serve cereals, and oatmeal stands out as the best of the cooked variety. The top milk and sugar served with cereals add greatly to their value. Toast is much better as a breakfast breadstuff than the hot breads which we are accustomed to serve. It is more easily digested, since it must be thoroughly chewed, and does not slip down the throat in pasty masses, which the digestive juices have trouble in breaking up. While hot breads hardly deserve to be entirely taboo, they should be used occasionally to give variety to the diet, rather than as the usual breakfast bread. Hot cakes or waffles and syrup are indigestible, both because of the hot bread and the large quantity of sugar introduced in the stomach. They should be kept for winter menus and served infrequently, even then. Occasionally the cereal may be omitted and eggs or bacon served instead, but it should be remembered that it takes at least three eggs or eight pieces of bacon (unless the fat is utilized) to equal in fuel value a dish of cereal with top milk and sugar, so it would be an expensive procedure to try to substitute them in equal fuel value very often. Of course the deficiency occurring when smaller amounts are used could be made up by eating more of the breadstuff and butter, or jam or jelly could be served. Coffee, tea, cocoa, or milk are the usual breakfast beverages, cocoa and milk having real food value, while coffee and tea are valuable only for the sugar and cream they contain.

With a light breakfast, one of the medium types of lunch is desirable. As a type lunch, perhaps the one that fits in best with a general scheme is the one including a hot dish, bread and butter, salad, and beverage. This makes necessary the preparation of only one dessert for the day,—the

one served at dinner. Suggestions for the main hot dish which is usually a meat substitute dish, i. e., dish containing protein, will be given later. White bread or whole wheat bread as staples, with corn bread or muffins for variety, are the luncheon breadstuffs, while the salad should be a fruit or vegetable salad with mayonnaise or cooked dressing, and the beverage cocoa or milk, the cocoa being served hot in the winter and iced in the summer. If tea is occasionally used, the loss in fuel value may be made up by serving preserves or jelly with the bread. In the summer, the hot dish may be replaced by substantial sandwiches, in the winter the beverage replaced by soup. Any of the variations suggested may by used, but it is best to select as a type menu the one best suited to the particular family in question and to keep the others in mind as variations.

Meat, two vegetables, bread and butter, and dessert make a dinner menu that fits in well with the breakfast and luncheon menus suggested, and affords plenty of variety for the ordinary family dinner. It is not necessary, perhaps not advisable, to have a heavy, all-meat dish for every dinner. Many families follow the plan of ordering meat only two or three times a week, and using left-over meat dishes between times. Meat can be combined with other food materials in many appetizing ways, and this practice is to be encouraged. Especially in the summer do we want to reduce the amount of meat in the diet. Of the two vegetables, one should be of the starchy variety—Irish or sweet potatoes, rice, hominy, or macaroni; the other should be green or succulent,—peas, asparagus, cabbage, onions, turnips, carrots, any vegetable, in fact, except the ones listed as starchy. Hot breads are best kept for breakfast or luncheon when there is less variety than at dinner. Simple desserts, rather than heavy pies or puddings, will help in keeping the meal easy to digest and in avoiding that stuffy feeling that so often comes after a too-sufficient meal. The following day's menu, worked out according to the above plan, will provide the 2250 calories that are necessary for a person of average

weight engaged in moderate muscular work, and will meet the body's need for minerals, vitamines, and protein:

Food	Measure	Grams of Protein	Calories
Breakfast			
Orange	½	.80	50
Oatmeal	½ c	2.10	50
Top milk	¼ c	1.25	100
Sugar	2 tsp.		35
Toast	1 piece ½″ thick	3.60	100
Butter	1 tb.	.13	100
Milk	1 glass	4.76	100
Lunch			
Macaroni and cheese	1 c	8.50	200
Whole wheat bread	1 piece ½″ thick	4.00	100
Butter	1 tb.	.13	100
Fruit salad	½ c fruit, 1 tb. dressing	1.80	200
Cocoa (made with milk)	1 c	10.00	250
Dinner			
Hamburg steak	2 small cakes	28.00	200
Baked potato	1 medium	2.69	100
Spinach	¾ c	1.00	35
Bread	1 slice	3.60	100
Butter (for potato, spinach, bread)	3 Tb	.39	300
Apple snow	1 c	1.50	100
Whipped cream	1 Tb	.25	50
Totals		74.50	2,270

Suggestions. After selecting the type of menu suited to your particular needs, it is necessary to have at your command a variety of dishes that will fit into these menus. The following scheme of menu-planning has been found to save both time and energy. Breakfast is a very simple meal to plan. With the type breakfast in mind, and a knowledge of the fruits on the market and several cereals on hand, it is hardly worth while to actually put down the breakfast menu on paper.

Lunch presents greater difficulties. It is a bit troublesome to get enough meat substitute dishes, that are acceptable to the family and easy to prepare, for proper variety. So the cook books were reviewed for dishes of this kind and a list made. This list has been added to from time to time, as new recipes have been discovered, tried out, and found possible. A list of fruit salads and vegetable salads was also found to be a help, and various kinds of breadstuffs were listed, as a certain amount of variety can be obtained by changing these.

For dinner, a list of meat and meat dishes and of desserts were all that was found necessary, since the choice of starchy vegetables is very limited and variety must be obtained by serving in different ways, and the choice of green vegetables is so great that one only needs to know the market. These lists also are constantly added to, and with them at hand and the type menu in mind, the planning of meals loses much of its fearsomeness. The recipes may be kept in a card catalog. Of course, the type menu is quite often departed from, soup or salad or both being added for a company dinner or some of the various substitute menus already suggested being used if the meals seem to be getting a bit monotonous. These lists contain only dishes that can be quickly and easily prepared, since it has been necessary, on account of outside work, that just as little time as possible be spent on meal preparation. However, in many households, a great deal too much time is spent in the kitchen and simpler menus would mean more time for the homemaker and better digestion for the family. The lists are reproduced here for whatever help they may be to the reader, but with the realization that a list of this kind, suitable for one family group, might not be acceptable to another. Each family should have its own lists.

TABLE VI

Main Dishes for Luncheon

Cheese Dishes
- Macaroni and cheese
- Baked stuffed potatoes with cheese
- Rice and cheese
- Rice, cheese, and tomatoes
- Creamed cheese on toast
- Nut and cheese roast
- Rice fondue on crackers

Egg Dishes
- Eggs a la goldenrod
- Creamed eggs
- Baked eggs (with bacon)
- Omelets, plain or with bacon, cheese, etc.
- Poached eggs on tomato

Egg and Cheese Dishes
- Cheese souffle
- Welsh rarebit
- Cheese fondue
- Cheese pudding

Nut Dishes
- Nut loaf
- Nut and potato timbales

Oysters
- Oyster stew
- Fried oysters
- Creamed oysters
- Scalloped oysters

Sandwiches
- Pimento and cheese
- Peanut butter
- Date and nut
- Date and prune
- Date and cream cheese
- Mock chicken
- Tuna fish
- Raisin and cheese
- Olive and cheese
- Chopped ham and apple

Dinner Meats

Beef or Veal
- Broiled steak
- Smothered steak
- Swiss steak
- Roast beef
- Veal chops
- Veal with tomato sauce
- Breaded veal cutlets
- Veal loaf
- Hamburg steak
- Tenderloin of beef
- Heart, stuffed
- Tongue
- Sweetbreads
- Liver
- Brains

Mutton or Lamb
- Roast
- Chops

Pork
- Roast
- Chops
- Sausage
- Ham—baked, fried, boiled
- Spareribs
- Bacon
- Tenderloin

Fish, Fresh
- Baked
- Fried
- Steamed
- Creamed

Fish, Canned
- Salmon loaf
- Salmon croquettes
- Salmon timbales
- Sardines
- Tuna fish

Sandwiches, Toasted
- Hot cheese
- Bacon and tomato with mayonnaise
- Club

Cream Soups
- Cream of pea soup
- Cream of tomato soup
- Cream of potato soup
- Cream of asparagus soup
- Cream of celery soup
- Cream of baked bean
- Cream of peanut butter, etc.

Miscellaneous
- Creamed dried beef on toast
- Baked bananas with bacon
- Baked beans
- Creamed tuna fish on toast
- Turkish pilaf
- Macaroni croquettes
- Egg, cheese, or fish salad

Salads

Heavy Salads (containing protein)
- Egg
- Nut and cheese
- Pineapple and cheese
- Apricot and cheese
- Apple and peanut
- Tuna fish
- Date and cream cheese
- Potato, peas, and nut
- Cottage cheese
- Prune and cottage cheese
- Chicken

Fruit Salads
- Pineapple
- Pear
- Apricot
- Apple
- Orange
- Grape-fruit

Oysters
- Fried
- Scalloped
- Creamed

Rabbit
- Stewed
- Baked

Chicken
- Fried
- Fricasse
- Baked

Combination Dishes
- Stuffed peppers
- Cannelon of beef
- Turkish pilaf
- Rice and meat loaf
- Meat stew
- Baked hash
- Meat pie
- Cottage pie
- Ham timbales
- Creamed dried beef on toast
- Rolled steak with dressing

Desserts

Fruit Desserts
- Canned peaches
- Canned pears
- Canned appricots
- Canned pineapple
- Canned cherries
- Baked apples
- Apricot souffle
- Prune whip
- Apple snow
- Ambrosia

Gelatine Desserts
- Lemon jelly
- Fruit gelatine
- Snow pudding
- Bavarian cream
- Marshmallow gelatine

Banana
White cherry
Apple and date
Apple and prune
Apple and banana
Orange and banana
Waldorf

Vegetable
Lettuce
Celery
Tomato
Beet
Potato
Cold slaw
Combination
Perfection
Asparagus
Tomato jelly
Celery and tomato
Tomato and asparagus
Celery and carrot
Tomato and cucumber
Beet and pea

Fruit and Vegetable
Apple and celery
Tomato stuffed with pineapple
Celery, apple, and green pepper
Celery, apple, and asparagus
Banana, apple, and celery
Cabbage and apple

Salad Dressings
Mayonnaise
French
Boiled
Thousand Island

Frozen Desserts
Ice Creams
Vanilla
Chocolate
Banana
Strawberry
Grape-nut
Peach
Ices
Pineapple
Apricot
Green-gage
Orange
Lemon
Fruit
Milk Sherbets
Lemon
Orange
Frozen pears
Frozen apricots
Frozen peaches
Frozen pineapple

Custards
Soft
Baked
Caramel
Chocolate
Banana

Puddings
Prune
Bread
Rice
Chocolate blanc mange
Pineapple
Brown Betty
Date
Chocolate tapioca
Apple tapioca
Gingerbread with sauce
Cottage

Pies and Shortcakes
Strawberry shortcake
Fruit pie
Custard pie

Breadstuffs

White bread
Graham bread
Nut bread
Raisin bread
Rolls
Baking powder biscuit (white or graham)
Drop biscuit
Scones
Plain muffins
Graham muffins
Rice muffins
Oatmeal muffins
Boston brown bread
Waffles
Hot cakes

Suiting the Menu to the Needs of the Children. With a definite knowledge of the foods suitable for children of different ages, it is not a difficult matter to plan menus and manage the preparation of meals so that each child may have the right kind of food. As far as is possible, select foods that all members of the family can eat, but be sure to omit from the diet of the child foods he should not have and to see that any necessary food not furnished in the menu planned is supplied. For instance, suppose there are three children aged 3, 7, and 12, and we have planned the day's menu given on page —. How could this be made to fit in with the needs of each child? Beginning with breakfast, the fruit selected would be all right for all members of the family, using orange juice for the three-year old. But if we had planned grape-fruit or strawberries, since the baby can eat neither of these, we would have an orange or some other suitable fruit on hand. Oatmeal would be served to everyone. Toast and milk complete the breakfast menu, and no change would have to be made here for the children. But if hot bread is planned, then toast must be made for the two youngest.

At lunch time, some of the plain, well-cooked macaroni should be provided for the two younger children instead of

macaroni and cheese. Stale or well dried bread should replace graham bread for the younger child, and a well-cooked fruit should be used instead of fruit salad for both the three and seven year old. Perhaps milk would be the best beverage for the three-year old, but everyone else could have cocoa.

At dinner, meat would be prepared for only the three oldest members of the family. But baked potato, spinach, and apple snow would be suitable for all, omitting whipped cream in serving the baby. But suppose we are planning creamed onions for the green vegetable the next day, then it would be well to save some of the spinach for the baby to eat at that time. And some of the apple sauce used in making apple snow could be saved for the next day's dessert in case you were planning pie which the younger children could not have. Planning meals suitable for both adults and children tends to make the menus for the grown-ups simpler than they would otherwise be, but this is to be regarded as an advantage rather than a disadvantage.

Food Prejudices. Every possible means should be taken to keep children from forming food prejudices and to induce adults to overcome those already formed. Half the trouble in menu-making comes because John absolutely refuses to eat carrots and Susie never touches rice. And how often you will find that a person expressing a strong dislike for a particular food has never even tasted it. Never suggest to a child that he may not like a certain food, or express a dislike for a food yourself. That there is no real basis for these food prejudices is attested by the fact that a food detested at one period of life often becomes a prime favorite at another. Some people have an idea that foods they do not like are not good for them, but even a superficial study of the way in which the digestive system does its work will upset such notions.

HOW SHALL WE JUDGE THE RESULTS OF OUR FEEDING METHODS?

There is no better way to decide whether or not we are following the correct feeding methods than to examine the nutritive condition of the various members of the family.

Relation of Weight to Height. One of the best indicators of normal nutrition is the relation of weight to height. The following tables giving the average weight for different heights have been compiled:

TABLE VII

Symond's Table of Height and Weight for Men of Different Ages

(Based on 74,162 Accepted Applicants for Life Insurance)

Ages	15-24	25-29	30-34	35-39	40-44	45-49	50-54	55-59	60-64	65-69
5 feet 0 inches	120	125	128	131	133	134	134	134	131	.....
1 inch	122	126	129	131	134	136	136	136	134	.....
2 inches	124	128	131	133	136	138	138	138	137	.....
3 inches	127	131	134	136	139	141	141	141	140	140
4 inches	131	135	138	140	143	144	145	145	144	143
5 inches	134	138	141	143	146	147	149	149	148	147
6 inches	138	142	145	147	150	151	153	153	153	151
7 inches	142	147	150	152	155	156	158	158	158	156
8 inches	146	151	154	157	160	161	163	163	163	162
9 inches	150	155	159	162	165	166	167	168	168	168
10 inches	154	159	164	167	170	171	172	173	174	174
11 inches	159	164	169	173	175	177	177	178	180	180
6 feet 0 inches	165	170	175	179	180	183	182	183	185	185
1 inch	170	177	181	185	186	189	188	189	189	189
2 inches	176	184	188	192	194	196	194	194	192	192
3 inches	181	190	195	200	203	204	201	198	.....	.....

TABLE VIII

Symond's Table of Height and Weight for Women of Different Ages

(Based on 58,855 Accepted Applicants for Life Insurance)

Ages	15-19	20-24	25-29	30-34	35-39	40-44	45-49	50-54	55-59	60-64
4 feet 11 inches	111	113	115	117	119	122	125	128	128	126
5 feet 0 inches	113	114	117	119	122	125	128	130	131	129
1 inch	115	116	118	121	124	128	131	133	134	132
2 inches	117	118	120	123	127	132	134	137	137	136
3 inches	120	122	124	127	131	135	138	141	141	140
4 inches	123	125	127	130	134	138	142	145	145	144
5 inches	125	128	131	135	139	143	147	149	149	148
6 inches	128	132	135	137	143	146	151	153	153	152
7 inches	132	135	139	143	147	150	154	157	156	155
8 inches	136	140	143	147	151	155	158	161	161	160
9 inches	140	144	147	151	155	159	163	166	166	165
10 inches	144	147	151	155	159	163	167	170	170	169

TABLE IX

Height and Weight Table For Boys

Height Inches	5 Yrs.	6 Yrs.	7 Yrs.	8 Yrs.	9 Yrs.	10 Yrs.	11 Yrs.	12 Yrs.	13 Yrs.	14 Yrs.	15 Yrs.	16 Yrs.	17 Yrs.	18 Yrs.
39	35	36	37											
40	37	38	39											
41	39	40	41											
42	41	42	43	44										
43	43	44	45	46										
44	45	46	46	47										
45	47	47	48	48	49									
46	48	49	50	50	51									
47	----	51	52	52	53	54								
48	----	53	54	55	55	56	57							
49	----	55	56	57	58	58	59							
50	----	----	58	59	60	60	61	62						
51	----	----	60	61	62	63	64	65						
52	----	----	62	63	64	65	67	68						
53	----	----	----	66	67	68	69	70	71					
54	----	----	----	69	70	71	72	73	74					
55	----	----	----	----	73	74	75	76	77	78				
56	----	----	----	----	77	78	79	80	81	82				
57	----	----	----	----	----	81	82	83	84	85	86			
58	----	----	----	----	----	84	85	86	87	88	90	91		
59	----	----	----	----	----	87	88	89	90	92	94	96	97	
60	----	----	----	----	----	91	92	93	94	97	99	101	102	
61	----	----	----	----	----	----	95	97	99	102	104	106	108	110
62	----	----	----	----	----	----	100	102	104	106	109	111	113	116
63	----	----	----	----	----	----	105	107	109	111	114	115	117	119
64	----	----	----	----	----	----	----	113	115	117	118	119	120	122
65	----	----	----	----	----	----	----	----	120	122	123	124	125	126
66	----	----	----	----	----	----	----	----	125	126	127	128	129	130
67	----	----	----	----	----	----	----	----	130	131	132	133	134	135
68	----	----	----	----	----	----	----	----	134	135	136	137	138	139
69	----	----	----	----	----	----	----	----	138	139	140	141	142	143
70	----	----	----	----	----	----	----	----	----	142	144	145	146	147
71	----	----	----	----	----	----	----	----	----	147	149	150	151	152
72	----	----	----	----	----	----	----	----	----	152	154	155	156	157
73	----	----	----	----	----	----	----	----	----	157	159	160	161	162
74	----	----	----	----	----	----	----	----	----	162	164	165	166	167
75	----	----	----	----	----	----	----	----	----	----	169	170	171	172
76	----	----	----	----	----	----	----	----	----	----	174	175	176	177

Prepared by Dr. Thomas D. Wood

About What a Boy Should Gain Each Month

AGE		AGE	
5 to 8	6 oz.	12 to 16	16 oz.
8 to 12	8 oz.	16 to 18	8 oz.

Copyrighted by Child Health Orzanization.

TABLE X

Height and Weight Table For Girls

Height Inches	5 Yrs.	6 Yrs.	7 Yrs.	8 Yrs.	9 Yrs.	10 Yrs.	11 Yrs.	12 Yrs.	13 Yrs.	14 Yrs.	15 Yrs.	16 Yrs.	17 Yrs.	18 Yrs.
39	34	35	36											
40	36	37	38											
41	38	39	40											
42	40	41	42	43										
43	42	42	43	44										
44	44	45	45	46										
45	46	47	47	48	49									
46	48	48	49	50	51									
47	----	49	50	51	52	53								
48	----	51	52	53	54	55	56							
49	----	53	54	55	56	57	58							
50	----	----	56	57	58	59	60	61						
51	----	----	59	60	61	62	63	64						
52	----	----	62	63	64	65	66	67						
53	----	----	----	66	67	68	68	69	70					
54	----	----	----	68	69	70	71	72	73					
55	----	----	----	----	72	73	74	75	76	77				
56	----	----	----	----	76	77	78	79	80	81				
57	----	----	----	----	----	81	82	83	84	85	86			
58	----	----	----	----	----	85	86	87	88	89	90	91		
59	----	----	----	----	----	89	90	91	93	94	95	96	98	
60	----	----	----	----	----	----	94	95	97	99	100	102	104	106
61	----	----	----	----	----	----	99	101	102	104	106	108	109	111
62	----	----	----	----	----	----	104	106	107	109	111	113	114	115
63	----	----	----	----	----	----	109	111	112	113	115	117	118	119
64	----	----	----	----	----	----	----	115	117	118	119	120	121	122
65	----	----	----	----	----	----	----	117	119	120	122	123	124	125
66	----	----	----	----	----	----	----	119	121	122	124	126	127	128
67	----	----	----	----	----	----	----	----	124	126	127	128	129	130
68	----	----	----	----	----	----	----	----	126	128	130	132	133	134
69	----	----	----	----	----	----	----	----	129	131	133	135	136	137
70	----	----	----	----	----	----	----	----	----	134	136	138	139	140
71	----	----	----	----	----	----	----	----	----	138	140	142	143	144
72	----	----	----	----	----	----	----	----	----	----	145	147	148	149

Prepared by Dr. Thomas D. Wood

About What a Girl Should Gain Each Month

AGE		AGE	
5 to 8	6 oz.	14 to 16	8 oz.
8 to 11	8 oz.	16 to 18	4 oz.
11 to 14	12 oz.		

Copyrighted by Child Health Orzanization.

Height and Weight of White Children from Birth to 6 Years of Age[1]

Age	White boys		White girls	
	Height (inches)	Weight (pounds)[2]	Height (inches)	Weight (pounds)[2]
Under 1 month	21 1/8	9 1/8	20 7/8	8 5/8
1 month, under 2	22 1/2	10 7/8	21 7/8	10 1/8
2 months, under 3	23 5/8	12 5/8	23 1/8	11 3/4
3 months, under 4	24 1/2	14 1/8	24	13
4 months, under 5	25 3/8	15 3/8	24 7/8	14 1/4
5 months, under 6	26 1/8	16 1/4	25 1/2	15 3/8
6 months, under 7	26 3/4	17 1/2	26 1/8	16 1/4
7 months, under 8	27 1/4	18 1/4	26 3/4	17 1/8
8 months, under 9	27 3/4	19	27 1/4	17 3/4
9 months, under 10	28 1/4	19 5/8	27 5/8	18 1/2
10 months, under 11	28 5/8	20 1/4	28 1/8	19
11 months, under 12	29	20 3/4	28 1/2	19 1/2
12 months, under 13	29 1/2	21 3/8	28 7/8	20
13 months, under 14	29 7/8	21 7/8	29 1/4	20 1/2
14 months, under 15	30 1/4	22 1/4	29 3/4	21
15 months, under 16	30 5/8	22 3/4	30 1/8	21 3/8
16 months, under 17	31	23 1/4	30 1/2	21 7/8
17 months, under 18	31 3/8	23 3/4	30 7/8	22 3/8
18 months, under 19	31 3/4	24 1/8	31 1/4	22 3/4
19 months, under 20	32 1/8	24 7/8	31 5/8	23 1/4
20 months, under 21	32 1/2	25	31 7/8	23 5/8
21 months, under 22	32 3/4	25 1/2	32 1/4	24 1/8
22 months, under 23	33	25 7/8	32 1/2	24 1/2
23 months, under 24	33 3/8	26 1/4	32 3/4	24 3/4
24 months, under 25	33 5/8	26 5/8	33 1/8	25 1/8
25 months, under 26	33 7/8	27	33 3/8	25 1/2
26 months, under 27	34 1/8	27 1/4	33 5/8	25 7/8
27 months, under 28	34 3/8	27 5/8	34	26 1/4
28 months, under 29	34 3/4	28	34 1/4	26 3/4
29 months, under 30	35	28 1/2	34 1/2	27 1/8
30 months, under 31	35 1/4	28 7/8	34 7/8	27 1/2
31 months, under 32	35 1/2	29 1/4	35 1/8	27 7/8
32 months, under 33	35 3/4	29 1/2	35 3/8	28 1/4
33 months, under 34	36	29 7/8	35 5/8	28 1/2
34 months, under 35	36 1/4	30 1/8	35 3/4	28 7/8
35 months, under 36	36 1/2	30 1/2	36	29 1/4
36 months, under 37	36 5/8	30 3/4	36 1/4	29 1/2
37 months, under 38	36 7/8	31	36 1/2	29 7/8
38 months, under 39	37 1/8	31 3/8	36 3/4	30 1/8
39 months, under 40	37 3/8	31 3/4	37	30 1/2
40 months, under 41	37 5/8	32	37 1/4	30 7/8
41 months, under 42	37 7/8	32 3/8	37 1/2	31 1/8
42 months, under 43	38 1/8	32 3/4	37 3/4	31 1/2
43 months, under 44	38 1/4	33 1/8	38	31 3/4
44 months, under 45	38 1/2	33 1/2	38 1/8	32 1/8
45 months, under 46	38 3/4	33 3/4	38 3/8	32 3/8
46 months, under 47	39	34	38 1/2	32 5/8
47 months, under 48	39 1/8	34 1/4	38 3/4	32 7/8
48 months, under 49	39 1/4	34 1/2	38 7/8	33 1/8
49 months, under 50	39 1/2	34 3/4	39 1/8	33 1/2
50 months, under 51	39 5/8	35	39 1/4	33 3/4
51 months, under 52	39 7/8	35 1/4	39 1/2	34
52 months, under 53	40	35 1/2	39 3/4	34 3/8
53 months, under 54	40 1/4	35 7/8	40	34 5/8
54 months, under 55	40 1/2	36 1/8	40 1/4	35
55 months, under 56	40 5/8	36 1/2	40 3/8	35 3/8
56 months, under 57	40 7/8	36 3/4	40 5/8	35 5/8
57 months, under 58	41 1/8	37 1/8	40 7/8	36
58 months, under 59	41 1/4	37 1/2	41	36 1/4
59 months, under 60	41 1/2	37 3/4	41 1/4	36 1/2
60 months, under 61	41 5/8	38 1/8	41 3/8	36 7/8
61 months, under 62	41 3/4	38 3/8	41 5/8	37 1/8
62 months, under 63	42	38 5/8	41 3/4	37 3/8
63 months, under 64	42 1/8	39	41 7/8	37 3/4
64 months, under 65	42 3/8	39 1/4	42 1/8	38
65 months, under 66	42 1/2	39 1/2	42 1/4	38 1/4
66 months, under 67	42 3/4	39 7/8	42 3/8	38 5/8
67 months, under 68	43	40 1/4	42 5/8	39
68 months, under 69	43 1/8	40 5/8	42 7/8	39 3/8
69 months, under 70	43 3/8	40 3/4	43 1/8	39 3/4
70 months, under 71	43 1/2	41 1/4	43 1/2	40 3/8
71 months, under 72	43 7/8	41 5/8	43 5/8	40 1/2

[1]These figures are based upon measurements of 167,024 white boys and girls for whom no serious defects were reported. The averages as calculated have been smoother and corrected to allow for the inclusion in the basic figures of children with adenoids, diseased or enlarged tonsils or carious teeth, and they represent, therefore, so far as the material permits, average heights and weights of children without defects.

[2]Weights do not include clothing.

U. S. Department of Labor, Children's Bureau.

Some explanation of these figures is necessary if they are to be interpreted correctly. In every case they represent averages, and we can use them as standards only with certain reservations. In the case of adults, they are based on *accepted* applicants for life insurance and for children are compiled from weight of *normal* children taken from various sources. In the case of children under six years of age, the figures represent averages from 167,024 white children. These were obtained by the Children's Bureau, and include only children without defects or diseases. It has been estimated, from a study of weight in relation to mortality records that among young people, the greatest vitality coincides with a weight somewhat above the accepted average, while with middle aged and elderly people a condition of slightly less than average fatness is more conducive to longevity. In other words, young people tend to keep themselves slightly too thin and older people to allow themselves to grow slightly too fat. It has been suggested that we take figures five per cent above the average as desirable weights for younger people and figures five per cent below the average for middle-aged and elderly people. The size of the bony framework of the body should perhaps be considered also, a person of the broad-shouldered, big-boned type needing to weigh more than the average, and a person with narrow shoulders and small bones, less. Ten per cent above or below weight is considered normal, that is, not until a person is more than ten per cent above or below weight are special dietetic measures considered necessary. In using the table for children under six years of age, weight should be considered in relation to height rather than age, just as in the other tables. It is not nearly so important that a child attain a certain height at a certain age, as that he attain the weight suitable for his height.

Other Indications of Bad Nutrition. But underweight is not the only sign of bad nutrition, nor are improper food and bad food habits the only causes. Other signs of bad nutrition in children are over-serious face, dark circles under the eyes, pallor and bad color, winged shoulder blades,

hollow chest, protruding abdomen, flexed knees, often spinal curvature and flat feet, and a general posture of fatigue. The causes of malnutrition in children are stated by Dr. Emerson to be as follows:

1. Physical defects, especially obstructions of the breathing passages. Children must be "free to breathe" if they are to be "free to gain." Adenoids, enlarged or diseased tonsils, or growths in the nose, eye strain, defects of hearing, hollow chest, crooked back, flat feet, may hold children back from normal gain.

2. Lack of home control. This means that the parents must assume the intelligent direction of the family, and not leave it to the children, who are usually ready to assume this responsibility, especially in America.

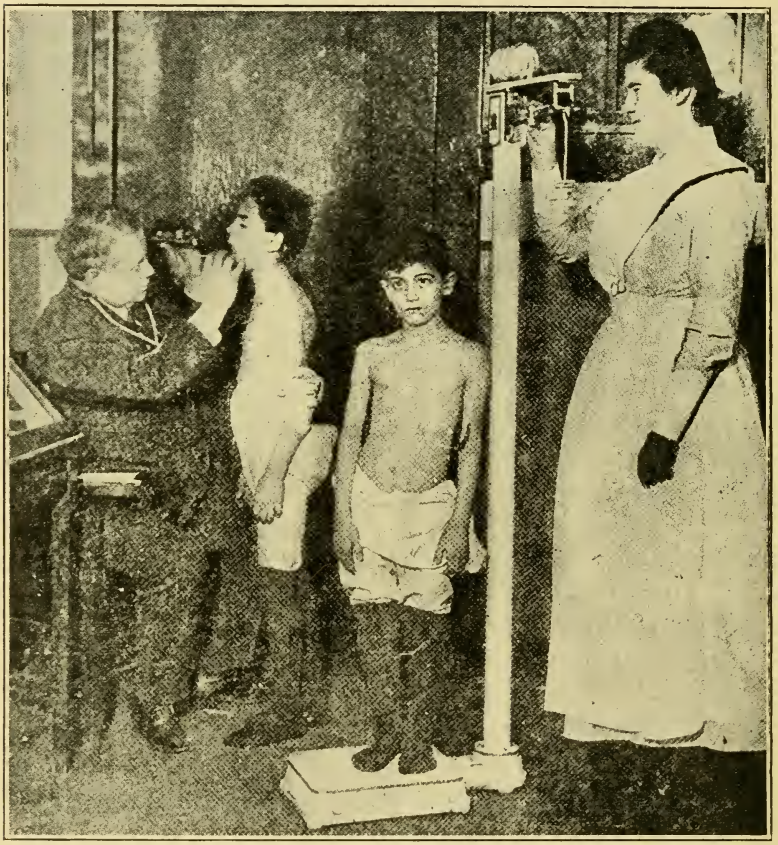
3. Overfatigue. Rest is as important as food in a child's development, and few of them have enough of it. The school program is often too intense for the growing child; he has too many outside activities, such as classes, clubs, or lessons; he is up much too late at night, and is too fatigued to get proper nourishment from his food.

4. Insufficient food and improper food habits, fast eating, badly balanced meals, irregular times for eating.

5. Faulty health habits, lack of fresh air, neglect of teeth, too little playtime, etc.

Many of the signs of under-nutrition in the child can also be applied to adults, and we constantly see bad complexions, stooped shoulders, and poor posture which mean either bad food habits, some other bad health habits, or possibly the existence of some chronic disease. It behooves anyone whose condition indicates bad nutrition to have a thorough physical examination and to take note of his health habits and correct those that are bad. Along with this, however, some changes in dietary habits are usually necessary. There are a great many people who habitually eat too much or too little, although it is often difficult to convince them of this. The stout person will insist that he really eats very little, and this may be true as far as bulk is concerned, but the stout person almost invariably likes lots of butter, plenty of

sugar, and cream, gravy with his meat, and pie or pudding with rich sauces for dessert. Potatoes and rice are his favorite vegetables, and candy between meals is not frowned upon. If you will turn back to your table of caloric values,



Courtesy Child Health Organization

"Underweight" is not only a verdict of rejection from the army. It may, at the age of ten, sentence a growing boy to a lifetine inefficiency and misery.

you will find that it doesn't take much food of this kind to meet the energy requirement. All extra calories are stored as fat. The thin person, on the other hand, will assure you that he eats plenty. And, again, maybe he does as far as

bulk is concerned. But he will carefully discard the fatty part of his meat and refuse gravy. He doesn't really care for butter, and pies and puddings give him indigestion. It is not the quantity of food eaten as much as the kind of food selected that determines nutritive balance.

Reducing and Fattening Diets. At a home economics exhibit, arrangements were made in the room devoted to nutrition, to weigh and measure all visitors. They were then given copies of the height and weight charts, told how to find what they should weigh according to their height, and referred to two charts, on which exceedingly slim "Little Mary" and horribly fat "Mrs. Jenks" were instructed as to the kinds of food they should select. These charts are reproduced on pages 54 and 55. Perhaps the following fattening and reducing dietaries will also be found helpful.

FATTENING DIETARIES

I. Fuel Value—2500 Calories

Breakfast
- Orange—1 large
- Grape-nuts—3 Tb.
- Thin cream—¼ cup
- Sugar—1 Tb.
- Bacon—2 slices
- Bread—2 slices
- Butter—1 Tb.
- Milk—1 glass

Lunch
- Cheese fondue—2/3 cup
- Bread—2 slices
- Butter—1 Tb.
- Apple jelly—1 Tb.
- Creamy rice pudding—½ cup
- Thick cream—1 T.
- Cocoa—1 c.

II. Fuel Value—3,000 calories

Breakfast
- Prunes—4 medium
- Oatmeal—¾ c.
- Egg—1
- Toast—2 slices
- Butter—1 Tb.
- Thin cream—¾ c.
- Sugar—1 T.
- Coffee—1 c.

10:30 a. m.
- Cup of cocoa

Lunch
- Corn chowder—3/5 c.
- Fruit salad—¾ c.
- Rolls—2
- Butter—1 Tb.
- Chocolate blanc mange with whipped cream

Dinner
Potato soup—1 c.
Crackers—2
Baked chicken—large serving
Seamed rice—½ c.
Gravy—2 Tb.
Creamed spinach—½ c.
Bread—2 slices
Butter—1 Tb.
Lemon pie—medium slice
Milk—1 glass

III. Fuel Value—3,500 calories

Breakfast
Grape juice—1 c.
Farina with 4 dates—¾ c.
Scrambled eggs—½ c.
Toast—1 slice
Butter—½ T.
Thin cream—7/8 c.
Sugar—2 T.
Coffee—1 c.

Lunch
Creamed chicken—½ c. on
Toast—1 slice
Lettuce salad—1 serving
Saltines—3
Vanilla ice cream—½ c.
Hot chocolate—1 c.

4:00 p. m.
Glass of milk

Dinner
Broiled steak—medium serving
Scalloped potatoes—1 c.
Buttered beets—1/3 c.
Lettuce and tomato salad—
1 serving
Boiled custard—½ c.
Salted almond—12
Macaroons—2

Dinner
Cream of corn soup—1c
Roast beef—large serving
Baked potato—1 medium
Buttered lime beans—3/8 c.
Whole wheat bread—2 slices
Butter—2 T.
Baked apple—1 large
Thin cream—½ c.
Sugar—1 T

REDUCING DIETARIES

I. Fuel Value—1100 calories

Breakfast
Apple—1 medium
Eggs—1
Toast—1 slice
Coffee—1 cup
Skim milk—1½ Tb.

II. Fuel Value—1,350 Calories

Breakfast
Grape fruit—½
Sugar—1 tsp.
Bacon—3 slices
Toast—1 slice
Coffee (black)—1 c

Lunch
Bouillon—½ cup
Crackers—1
Roast beef—medium serving
Lettuce and cottage cheese salad
Lettuce—as much as one wants
Cheese—2½ Tb.
Fr. dressing—½ Tb.
Tea with lemon

Dinner
Baked fish—large serving
Boiled potato—½ medium
Cauliflower (plain)—large serv.
Butter—1 T.
Cold Slaw—1 cup
Bread—1 thin slice
Orange—1
Hot skim milk—½ cup

III. Fuel Value—1,500

Breakfast
Orange—1
Poached agg—1
Bacon—2 slices
Toast—½ slice
Coffee—1 c
Skim milk—3 Tb.
Sugar—1 tsp.

Lunch
Clear tomato soup—½ c.
Crackers—2
Codfish balls—2
Tomato and lettuce salad
Lettuce—as much as one wants
Tomatoes—1 medium
French dressing—½ Tb.
Graham bread—2 thin slices
Baked apple—1

Lunch
Clear soup—1 c
Crackers—4
Steamed fish—large serving
Spinach—1 c
Bread—1 slice
Apple and celery salad
Lettuce—as much as desired
Apple—½
Celery—1 stalk
Fr. dressing—½ Tb.

Dinner
Broiled steak (lean) med. serv.
Baked potato—½ med.
Butter—½ Tb.
Fruit salad—½ c.
Bread—1 slice
Hot skim milk—½ c.

Dinner
Lean roast beef—medium serv.
Mashed potato—½ cup
Asparagus with butter
Ten stalks asparagus
½ Tb. butter
Bread—1 slice
Grape fruit—½
Sugar—1 tsp.
Hot skim milk—½ cup.

Mrs. Jinks is horribly fat
Good eats she likes and lots of that
But the rules below followed month after month
Will make Mrs. Jinks just nice and plump.

Avoid fats and dishes containing fat, eliminating butter and cream almost entirely.
Use sugar sparingly and avoid confectionery.
Eat only small quantities of bread cereals, potatoes and other starchy foods.
Green vegetables of all kinds prepared without butter.
Fresh fruit should be substituted for puddings, cakes and pies.
Lean meats, simply cooked, may be used liberally, if plenty of green vegetables be included.

Select diet mainly from following foods:

Coffee and tea without milk or sugar - Meat broth (fat skimmed off) with vegetables. Lean meat or fish, oysters, lean cheese.
Such vegetables as cabbage, celery, lettuce, spinach, cauliflower, tomatoes and radishes.
Raw fruit as apples, peaches, strawberries, raspberries, sour cherries, grapefruit and oranges.
Eggs, skimmed milk and buttermilk.

Home Economics Extension
University of Texas

Little Mary was most exceedingly thin
All angles where the curves should have been
Soon you wont know her, for she really means
To follow the following fattening schemes:

EAT:-

- simple foods which do not upset digestion.
- lots of cereal with plenty of cream and sugar
- at least two slices of bread liberally spread with butter at each meal.
- A mid-morning lunch of milk and crackers and a glass of milk before bedtime, nothing else between meals
- vegetables served with cream sauce, or as salad with mayonnaise, French or cream dressing.
- meat in moderation, but eat fat as well as lean.
- enough fresh vegetables and fruit to make a well balanced diet.

SELECT FOOD FROM FOLLOWING LISTS

PROTEIN:- Eggs, chicken, fish, beef, milk, cheese.

CARBOHYDRATE:- Oatmeal, cornmeal, rice, macaroni, bread, zwieback, potatoes, sugar, honey, dried peas, fresh fruits, chestnuts, grape-juice.

FAT:- Bacon, cream, butter, milk, olive and peanut oil.

Home Economics Extension
University of Texas

Nutrition Classes. The problem of the malnourished child has come to be recognized as the biggest problem in nutrition today. This was forcibly called to our attention by the alarming amount of unfitness in the men examined for the army. The Nutrition Class, which has already been mentioned, was instituted to help solve this problem, and a description of some of the methods used will not be amiss here. Although these classes have been introduced in playground centers and in other places where groups of children come together, they belong in the school, as it is there they can be of greatest value. When put into a school, the following procedure is followed:

1. All the children in the school are weighed and measured, and are given tags to take home, telling what they should weigh and what they do weigh.

2. Those who are more than ten per cent underweight, or who show other signs of undernourishment, are put into a special class, which meets once a week.

3. Each child is given a careful examination for physical defects by a physician. The mothers are advised of the results and are urged to have these defects remedied.

4. At the weekly meeting, each child is weighed and retagged, and a short talk is given on some good food or health habit. Weight charts are kept for each child. On each is a line indicating the normal growth curve for children. This is explained to the child, and a line below it, representing his weight, is started. As the weight is recorded each week, the child is interested in seeing his own weight line approach the normal line. Rivalry, as to who can gain the most, is also encouraged, and various colored stars are given for the child making the greatest gain; for observing certain food rules for the week, etc. Fairy stories, plays, games, and songs are introduced to get the material across to the child, the material and methods used depending on the age of the child.

Excellent results have been obtained through these Nutrition Classes but what is really needed is health instruction for every child in school. It should be made as vital a part

of the school program as grammar or arithmetic. Is it not as important? Because a child shows no signs of malnutrition does not necessarily mean that he is properly fed. He may have enough vitality to withstand the effects of improper food, for some time, but, in the end, he is almost sure to suffer, and this could be prevented if proper food habits were early taught and impressed upon him.

THE ECONOMIC ASPECT OF FOOD

The making of proper menus is not a difficult job if we are not limited in the amount of money that can be spent, but when it is necessary that we be as economical as possible, food must be carefully chosen, in order to get the best

NUTRITION CLASS IN ONE OF THE AUSTIN SCHOOLS

value for our money. A comparison of foods according to the cost of the 100-calorie portion is valuable from the standpoint of the amount of energy value you are getting in return for your expenditure, but it is apt to be misleading, since energy need is only one of the body needs, and we should consider a food from the standpoint of energy, protein, minerals, and vitamines. Since it is impossible to express the result of such a consideration in any concrete way,

it seems best to consider energy-giving foods from the standpoint of cost of energy, protein-giving foods from the standpoint of cost of protein, and mineral giving foods from the standpoint of cost of minerals, remembering that energy-giving foods contain certain amount of protein and minerals, and that the protein-giving and mineral foods have varying amounts of energy-value. We do not know enough about the vitamines to make a comparison from this standpoint possible.

Comparison of Energy-Givers. Table 12 gives the cost of the 100-calorie portion of the foods that we think of chiefly as energy-givers.

TABLE XII

Comparison of Energy-Giving Foods

Food	Calories per lb.	Cost per lb.	Cost of 100 calories
Starchy Vegetables			
Irish potatoes	304	.04	.013
Sweet potatoes	447	.06	.013
Cereals			
Cornflakes	1631	.30	.018
Grape-nuts	1683	.25	.015
Macaroni	1624	.29	.018
Puffed corn	1600	.48	.030
Puffed rice	1600	.58	.036
Puffed wheat	1600	.48	.030
Shredded wheat	1657	.22	.013
Cornmeal	1613	.04	.003
Cream of wheat	1641	.17	.010
Hominy grits	1608	.09	.006
Oatmeal	1803	.12	.007
Rice	1591	.07	.004
Breadstuffs			
White bread	1177	.08	.007
Graham bread	1140	.08	.007
Cornmeal muffins	1332	.12	.009
Baking powder biscuit	1232	.10	.008
Graham crackers	1904	.27	.014
Soda crackers	1875	.20	.010
Rolls	1232	.10	.008

Cakes and Cookies			
Doughnuts	1940	.19	.009
Molasses cookies	1776	.12	.007
Plain cookies	1776	.13	.007
Loaf cakes (egg)	1600	.12	.007
Angel cake	1232	.19	.015
Sweets			
Chocolate fudge	1776	.16	.009
Corn syrup	1056	.10	.009
Honey	1480	.18	.012
Maple syrup	1328	.32	.024
Molasses	1328	.13	.009
Sugar (granulated)	1814	.10	.005
Sugar, loaf	1814	.14	.007
Sugar, brown	1720	.14	.008
Fats			
Bacon fat	4000	?	?
Butter	3490	.40	.011
Cream thin	880	.20	.022
Cream thick	1730	.35	.02
Cream whipped	1730	?	?
Oleomargarine	3490	.33	.009
Olive oil	4000	.90	.022
Wesson oil	4000	.35	.009

From this it will be found that the cost of 100-calories varies from .003c, when the energy comes from cornmeal, to .036c for puffed rice. The difference of energy cost in the ready-to-serve and the uncooked cereals is apparent; none of the uncooked cereals, except cream of wheat, costing as much as a cent per 100-calories, and the prepared cereals ranging in price from .013c to .036c, the puffed cereals costing over twice as much as those prepared in some other way. The starchy vegetables compare favorably with the prepared cereals in fuel value, while most of the breadstuffs, plain cakes, and cookies, and sweets are to be classed with the uncooked cereals. Exceptions to this are graham crackers, soda crackers, honey, and maple syrup, which are somewhat more expensive. In considering cakes and cookies, it must be noted that the estimates that make them comparable to uncooked cereals are made while eggs are cheap (twenty cents per dozen), and that a higher cost of

eggs will make them more expensive fuel sources. Cream and olive oil are rather dear fuels, while the other fats cost about the same as uncooked cereals. Note the difference in the cost of olive oil and Wesson oil.

Comparison of Protein Foods. We can find our cheapest protein food by comparing the cost of each that it takes to give 75 grams of protein, the total amount required each day, by the body. This is done in Table 13.

TABLE XIII

Comparison of Protein-Containing Foods

Food	Price per lb.	Approximate amount containing 75 gms.	Cost of 75 gms.
		Pounds	
Beef			
Liver	.20	4/5	.160
Loin	.30	1	.300
Porterhouse steak	.35	9/10	.315
Round steak	.30	9/10	.270
Rump	.25	1 1/5	.300
Tongue	.20	1 1/5	.240
Pork			
Ham, boiled	.65	4/5	.520
Loin chops	.30	1 1/5	.360
Shoulder	.25	1 1/5	.300
Sausage meat	.25	1	.250
Lamb			
Leg, hind	.30	1	.300
Loin	.30	1	.300
Shoulder	.30	1 1/5	.360
Chicken	.25	1 1/5	.300
Fish			
Cod, salt (canned)	.40	9/10	.360
Trout	.25	1 4/5	.450
Mackerel	.25	1 3/5	.400
Oysters	.28	2 4/5	.780
Eggs	.132	1 2/5	.184
Cheese			
American	.30	1/2	.150
Cottage	.25	4/5	.200

Nuts			
Walnuts	.20	3 2/5	.680
Pecans	.50	3 2/5	1.700
Dried beans	.10	7/10	.088
Dried peas	.10	7/10	.098
Milk	.075	5	,375

Dried beans and peas prove to be our cheapest sources of protein, with cheese, eggs, and peanuts second. Peanuts are a much cheaper source of protein than any of the other nuts. Since it takes so nearly the same amount of meat to furnish the daily supply of 75 grams, the cost of meat as a protein can be fairly accurately based on its cost per pound. Milk compares with the medium priced cuts of meat, as a source of protein.

Comparison of Mineral-Containing Foods. When we put together the list of foods high in calcium, phosphorus, and iron, we have thirty-seven foods which, for practical purposes, may be considered together as the best foods to depend on for our mineral supply. Almost all of these are fresh vegetables and fruits, and the price varies so much with the season that data relative to the cost is apt to be misleading. The ones that are cheapest at any particular season are to be considered the most economical mineral sources. Ordinarily, cabbage, onions, turnips, spinach, squash, and carrots are among the cheaper sources, while celery, lettuce, cauliflower, asparagus, and brussels sprouts are among the most expensive. Cheese and dried beans are cheap sources of minerals, and as they are also cheap sources of protein, they should occupy a large place in a diet where rigid economy must be observed. Whole wheat flour and all-grain cereals are also deserving of wider popularity, since they furnish both minerals and vitamines in addition to energy.

In many cases, we have the dried, fresh, or canned product to select from. The dried fruits and vegetables are always cheap sources of minerals compared with the fresh or canned. Drying does not, of course, affect the mineral content, but it is likely to destroy or diminish the vitamine

content. So also is canning. Except for flavor and ease of preparation, the canned fruits and vegetables have no advantage over the dried, and when we are constructing cheap menus, the dried products must be used extensively. Canned products are apt to be more expensive than fresh, except when the fresh products are purchased out of season or at the very beginning of the season, when the reverse is usually true. To avoid buying fruits and vegetables that are not in season must, then, become one of the maxims of the economical housewife.

Let us consider our type menu in the light of food economy. The fruit for breakfast would have to be selected from the dried fruits with an occasional serving of some of the fresh fruits that are in the height of their season. The cereal would, in the winter, be cornmeal mush, oatmeal, rice, or hominy grits; in the summer, shredded wheat, cornflakes, or grape-nuts. There could be a considerable choice of breadstuffs, and we should never attempt to violate the rule of a pint of milk a day for every child, even when the most rigid economy is necessary and when milk is high in price. Everything considered—digestibility, protein content, and quality of protein, energy value and mineral and vitamine content, milk gives us more in return for our money than any other food, unless it is exceptionally high in price. We are on dangerous ground when we attempt to substitute other food for milk, especially in the diet of the child. Dried beans or peas would appear quite frequently as the main dish for luncheon, with some of the cheese dishes for variety. The salads would have to be mostly vegetable salads, with boiled dressing instead of mayonnaise, and some of the nut margarines substituted for butter. The cheaper cuts of meat must be utilized for dinner, and most of the combination meat dishes will be found valuable in constructing a cheap menu. The starchy vegetables are not expensive if you get a good, sound product. But often there is much waste. Rice is cheaper than potatoes and there is little waste. The use of rice as a starchy vegetable has much to recommend it. The green

vegetable selected will depend on the time of year and the market. Simple puddings are one of the cheapest forms of dessert, and rice pudding, cottage pudding, chocolate blanc mange, etc. may be used to fill this need. Of course when the most rigid economy is necessary the type menu will probably have to be discarded altogether, desserts and salads being omitted and only the plainest and simplest food used. Reducing the dietary to its lowest cost always means emphasizing the non-perishable staple foods, such as cereals and dried fruits and vegetables and a very sparing use of meat and fresh or canned fruits and vegetables.

The Food Budget. There must be, of course, a minimum amount for which a family can be properly fed. In 1919, quite an extensive survey of living costs was made by the Bureau of Labor Statistics under the direction of Mr. Royal Meeker, United States Commissioner of Labor Statistics. This included an analysis of the food budgets of nearly thirteen thousand families, obtained in seventy-one large cities and twenty-six small towns in the different geographical sections of the country, with incomes of $900 to $2500. As a result of this analysis, it was concluded that from fifty to sixty cents per man per day was necessary to secure a well-balanced diet, sufficient in the number of calories and in variety. Perhaps this "per man per day" basis needs some explanation, as it is easily misunderstood. In order to have some unit of measurement, we have to express the food consumption of families in terms of a common unit of measure, and we do this in terms of the adult man, counting each individual in the family over 14 years of age as 1 unit, between 11 and 14 years .9 of a unit, between 7 and 10 years .75 of a unit, 4 to 6 years .4 of a unit, and 3 years and under .15 of a unit. Thus, a family consisting of mother, father and three children, aged three, seven and twelve would contain 3.8 per man per day units (1+1+.9+.75+.15).

Food prices have fallen considerably since the above investigation was made, and it can now be estimated that, when rigid economy is observed, proper food may be obtained for from 45 to 50 cents per day per person. Fifty-five to sixty cents is a good average allowance for food.

With this amount to spend, menus approximating the one already outlined may be furnished.

The amount of money spent for food will always depend upon the income of the family, the smaller the income, the larger the percentage spent for food. On a basis of 55 cents per day per person, it would require about $800 per year for food for the average family of five—mother, father, and three children between the ages of four and fourteen.

LIBRARY OF CONGRESS
0 014 337 661 8